2004 Annual Monitoring and Evaluation Report and 5-Year Plan Review National Forests In Florida

2004 ANNUAL MONITORING AND EVALUATION REPORT AND 5-YEAR PLAN REVIEW

National Forests in Florida

Abstract

Monitoring, evaluation, and research are the heart of adaptive management and are the quality control mechanisms for the Revised Land and Resource Management Plan for the National Forests in Florida (Forest Plan). The National Forest Management Act planning regulations specify that "at intervals established in the Forest Plan, implementation shall be evaluated on a sample basis to determine how well objectives have been met and how closely management standards have been applied. Based on this evaluation, the interdisciplinary team shall recommend to the Forest Supervisor such changes in management direction, revisions, or amendments to the Forest Plan as are deemed necessary."
Monitoring elements covered in this report are listed in Chapter 5 of the Forest Plan. Monitoring Tasks are listed under Appendix E of the Forest Plan.

This past fiscal year, 2004, also marks the half-way point of the planning period covered by the Land and Resource Management Plan (LMP). It is time to look for trends in data and outputs to see if we are on the road to achieving the goals and objectives laid out in the LMP. These trends will indicate if we need to change our management approaches in order to achieve the goals, or if we need to amend the Plan to adjust our goals, objectives, standards, guidelines, or monitoring program. As such, this monitoring report also included the 5-year review as required by 36 CFR 219.10(g) of the 1982 Planning Rule.

Certification Statement

I have evaluated the monitoring results and recommendations in this Report. I have directed that the Action Plans developed to respond to these recommendations be implemented, unless new information or changed resource conditions warrant otherwise. I have considered funding requirements in the budget necessary to implement these actions.

With these completed changes, the Forest Plan will be sufficient to guide forest management for the next fiscal year, unless ongoing monitoring and evaluation identify further need for change. Any amendments or revisions to the Forest Plan will be made using the appropriate NEPA procedures.

This report is approved:

Marsha Kearney

MARSHA KEARNEY
Forest Supervisor

Date 09/27/2005

Contents

Summary

Implementation of The Revised Land and Resource Management Plan for the National Forests in Florida (Forest Plan) began in June 1999. This report documents the results of monitoring how well goals and objectives of the Forest Plan have been met and how closely management standards have been applied in FY 2004 (October 2003-September 2004), the fifth full year of implementation and the halfway point in the Forest Plan's lifetime.

Monitoring elements covered in this report are listed in Chapter 5 of the Forest Plan. Specific monitoring questions are identified and directly linked to Forest Plan goals, desired future conditions, objectives, standards, guidelines and specific regulatory requirements. Every goal, objective, standard and guideline cannot be monitored. Relevancy to issues, compliance with legal and agency policy, scientific credibility, administrative feasibility, budget considerations, and impact on work force all influence monitoring priorities. In addition, this Monitoring Report represents the halfway point of the life of the Forest Plan, and will be used to note trends and make recommendations for changes to management or Forest Plan direction.

Major Findings:

Based on the expected annual average of outcomes for the planning period, most of the monitoring items reflect expected outcomes and are progressing at the rate necessary to achieve the desired conditions, goals and objectives of the Plan within the 10-year planning period. Areas not meeting or anticipated to meet Forest Plan objectives are highlighted in bold font.

Monitoring Question	**Meeting or anticipated to meet Forest Plan Objective**	**Five-year trend**	**Recommendation**
1.1 Health of natural forest communities			
Plants	Yes	No Trend Established	There is a need to increase inventory efforts on MIS plant species and distributions. In addition, the MIS species list needs to be revised to select species which

Monitoring Question	Meeting or anticipated to meet Forest Plan Objective	Five-year trend	Recommendation
			may provide better information on effects of management. An additional option is to remove MIS due to limitations of the Management Indicator Species theory.
Wildlife and Fish	Yes	Varies by species	The MIS species list needs to be revised to select species which may provide better information on effects of management. An additional option is to remove MIS due to limitations of the Management Indicator Species theory.
1.2 Habitat conditions of the major habitat associations?	Yes	Increasing	Increase regeneration of off-site slash pine and sand pine scrub to native species.
1.3 RCW populations	Yes	Stable or increasing except for the Wakulla population	Increase thinning and burning efforts on the Wakulla population. Review monitoring protocols.
1.4 Effects of the reduced foraging standards on the Apalachicola National Forest	Unknown	No Trend Established	Recommended for removal from the 1999 LRMP based on updated information in the 2003 RCW Revised Recovery Plan.
1.5 Population trends of scrub jay, management effects on scrub jay, acres suitable for scrub jay?	Yes	Increasing	Maintain scrub-jay habitat regeneration efforts and pursue research needs 2 & 3 identified in this report.
1.6 Viable populations of PETS animal species and habitats to support them?	Yes	Limited Trend Data Available	Continue to monitor and implement management guidance in the 1999 Revised LRMP
1.7 Viable populations of PETS plant species and habitats to support them	Yes	No Trend Established	Increase growing season burning efforts and restoration of native pine ecosystems and increase inventory efforts.
1.8 Burning interval of upland pine acres	Yes	Increasing	Continue efforts to achieve annual burning objectives.
1.9 Miles of firelines plowed for	Yes	Plowed Lines	Increase restoration efforts of plowed firelines and

Monitoring Question	Meeting or anticipated to meet Forest Plan Objective	Five-year trend	Recommendation
prescribed fire and wildfires and fireline restored		Increasing, Restored Lines Decreasing	minimize number of plowed firelines constructed.
1.10 Off-site slash pine restoration	**No**	**Increasing**	**Increase efforts to restore off-site slash pine**
1.11 Data on understory structure	Yes	No Trend Established	Continue to collect and input data on understory species
1.12 Thinning	**No**	**No Trend Established**	**Increase efforts to thin longleaf and slash pine stands.**
1.13 Off-site sand pine restoration	Yes		Continue to restore off-site sand pine
1.14 Uneven-aged management harvest, effects of group selection method, longleaf desired conditions, and effects of group selection harvest in longleaf pine	**No**	**Decreasing**	**Increase efforts to initiate unevenaged harvest**
1.15 Irregular shelterwood harvest	**No**	**No Change**	**Identify opportunities to test the irregular shelterwood method during project planning activities.**
1.16 Sand pine regeneration	**No**	**Level**	**Increase regeneration of sand pine**
1.17 Size and distribution of openings in sand pine?	Yes	Increasing	Continue to place regeneration harvest adjacent to current habitat to increase opening size.
1.18 Old-growth designation	Yes	Increasing	The Ocala and Osceola NFs need to complete old-growth designations
1.19 Land purchases and exchanges	Yes	Increasing	Continue efforts to acquire lands within Pinhook purchase unit, Florida National Scenic Trail, and within National Forest boundaries.
1.20 Acid deposition in aquatic and terrestrial ecosystems and water quality	Yes	No Trend Established	Continue to implement 1999 LRMP standards until Florida DEP study of algae in springs is completed and re-evaluate

Monitoring Question	Meeting or anticipated to meet Forest Plan Objective	Five-year trend	Recommendation
1.21 Air quality	Yes	Particulates Increasing, Ozone Decreasing	Continue implementing the 1999 Revised LRMP.
1.22 Water bodies fertilized	**No**	**No Trend Established**	**No recommendations. Due to drought and low water levels, lack of fertilization is not a problem.**
1.23 Soil disturbance minimized in preparing longleaf and slash pine sites	Yes	Decreasing	Continue to minimize soil disturbance. Review Forest-wide standard VG-18 for possible clarification to facilitate restoration of longleaf/wiregrass communities when non-herbaceous vegetation is not present.
1.24 Effects of cattle grazing on vegetation?	Yes	Decreasing	Due to decreasing levels of grazing on the forest, no recommendation for change.
2.1 Recreation site accessibility	Yes	Increasing	Continue efforts to meet accessibility levels on the remaining developed campgrounds.
2.2 Recreation facilities providing Meaningful Measures	Yes	Increasing	Remove from the Fee Demo program areas showing very low use through closure or curtailment of services.
2.3 Trail system designation	Yes	Increasing	Relocating some sections of trails off of wetland soils and the use of footbridges and boardwalks will help the Forest achieve 100% attainment of Meaningful Measures standards
2.4 Florida National Scenic Trail certified	Yes	Increasing	Continue efforts to construct and certify trails along the FNST
2.5 Wild and scenic river designation	Unknown	No Change	Continue to manage Wild and Scenic Rivers to maintain on-going proposed status.
2.6 Wilderness opportunities, and Clear Lake recommendation	Unknown	No Change	Continue to work with Florida's congressional delegation to gain support to draft and introduce new wilderness legislation for Florida.
2.7 Wilderness character	Yes	No Trend Established	Establish vegetation plots in wilderness areas.

Monitoring Question	Meeting or anticipated to meet Forest Plan Objective	Five-year trend	Recommendation
2.8 Natural Area wilderness recommendation	Unknown	No Change	Continue to work with Florida's congressional delegation to gain support to draft and introduce new wilderness legislation for Florida.
2.9 Effect of access policy	Not Implemented	Not Implemented	Continue the access designation process as one of the Forest's highest priorities.
2.10 Heritage resource sites evaluation and protection	Yes	No Trend Established	Increase the number of sites evaluated.
2.11 Scenic resource protection	Yes	No Trend Established	Implement the Scenery Management System at the earliest opportunity.
2.12 Forest visitors understanding of Forest Service practices	Yes	Variable	Continue to promote interpretive programs and increase educational efforts about motorized access on the forest.
2.13 Contributing to the socioeconomic well-being	Yes	Stable	Continue to implement the 1999 Revised LRMP.
2.14 Special forest products	Yes	Stable	Obtain information on specific sites to determine potential cumulative amounts in the same area.
2.15 Timber offered for sale	Yes	Stable	Continue to focus on treatment of high priority areas for ecosystem objectives which should ensure outputs do not exceed the ASQ by the end of the 10 year planning period..
2.16 Special-use permit compliance	Yes	No Trend Data Available	Increase efforts to complete permit inspections as funding becomes available.
2.17 Miles of roads converted to another use or closed?	Yes	Decreasing	Continue efforts to analyze access on the forest and convert excess roads and trails.
3.1 People satisfaction with service	Removed by Forest Plan Amendment #2.	NA	
3.2 Public participation and partnerships	Removed by Forest Plan	NA	

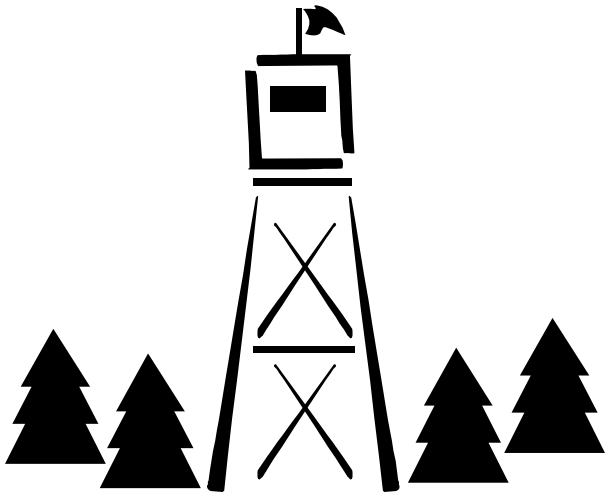
Monitoring Question	Meeting or anticipated to meet Forest Plan Objective	Five-year trend	Recommendation
	Amendment #2		
3.3 Implementation of planned actions	Yes	No Trend Established	Continue to monitor site-specific projects for compliance with associated NEPA documentation.

I. Introduction

Monitoring is the quality control mechanism for the Forest Plan. Monitoring elements covered in this report are listed in Chapter 5 of the Forest Plan.

The report contains results and findings structured under three major headings: Ecosystem Condition, Health, and Sustainability; Sustainable Multiple Forest and Range Benefits; and Organizational Effectiveness. Under each of these headings, Forest Plan goals, objectives, or standards and guidelines that apply are listed along with the monitoring questions, items to measure and results.

This report also presents a Monitoring and Evaluation Action Plan that outlines actions to be taken in response to the results of monitoring. No single monitoring item or parameter automatically triggers a change in Forest Plan direction. An interdisciplinary, holistic approach is used to evaluate information and decide what changes are needed.



II. Detailed Monitoring and Evaluation Results and Findings

Ecosystem Condition, Health, and Sustainability

Forest Plan Goals:

- Maintain or, where necessary, restore ecosystem composition, structure, and function within the natural range of variability in all ecosystems, with emphasis on longleaf pine-wiregrass, sand pine-oak scrub, pine flatwoods, hardwood/cypress, oak hammock ecosystems, and other imperiled specialized communities.
- Manage floodplains, groundwater, lakes, riparian areas, springs, streams, and wetlands to protect or enhance their individual values and ecological functions.
- Conserve and protect important elements of diversity such as endangered and threatened species habitat, declining natural communities, and uncommon biological, ecological, or geological sites.
- Manage for habitat conditions to recover and sustain viable populations of all native species, with special emphasis on rare species.

1.1 Monitoring Question: Is the health of natural forest communities being maintained or improved?

Item to Measure: Management Indicators (Refer to Tables 5.2 and 5.3 in the Forest Plan)

Plants

Results: The monitoring strategy in the Forest Plan prescribes that this item be reported on a five-year frequency in order to discern significant trends in the indicators and management activities. The following results are presented as a baseline of current information concerning these management indicator species. Because of limited funding, variables for community indicators were not collected for all species in FY 2004. Information on Threatened and Endangered plants and animals which are also MIS species are reported in this section of the monitoring report..

In 1994, as part of an ecosystem classification project, the National Forests in Florida entered into a contract with the University of Florida, to establish plots on the five districts on the National Forests in Florida. Data were to be taken from these plots on soils and vegetation. The plots were also to serve as permanent vegetation monitoring plots. Beginning in November of 1994, ninety plots were established on the Ocala National Forest, fifty on the Osceola National Forest, and one hundred one on the Apalachicola National Forest.

In 1999 and 2000, those plots with recorded occurrences of MIS plants on the Ocala National Forest were identified and most were relocated. The area coverage of MIS plants in these plots was recorded a second time.

In 1996, plots were established to specifically monitor population trends of the Threatened and Endangered plants on the Ocala and Apalachicola National Forests. Initial data has been taken from most of these plots and several have been revisited.

The plots established by the University of Florida were intentionally placed on sites selected because they were thought to closely represent the potential natural vegetation of their respective communities. In order to track the success of efforts to improve or restore the natural native communities on degraded sites, plans are to establish similar monitoring plots on pine plantations and other degraded sites. Because of shortages of personnel with the expertise to accomplish this, the National Forests in Florida have an agreement with Florida Natural Areas Inventory (Florida's Heritage Organization) to establish such plots and to perform additional surveys for MIS, T & E, and Forest Sensitive Plants. To date Florida Natural Areas Inventory has established 23 monitoring plots, all on the Wakulla Ranger District, and recorded baseline data from these plots. Monitoring results and trend data of those MIS species occurring in the plots are shown under the discussion of each of those species (Figures 1-9).

Florida Bonamia (Bonamia grandiflora**)**

Results: A survey completed by the US Forest Service in 1994 found Florida Bonamia to occur in 93 stands on the Ocala National Forest. The Ocala National Forest population appears to be large and relatively secure. The distribution (as mapped from roads) is roughly oval-shaped and does not seem to coincide with any changes in vegetation or soils.

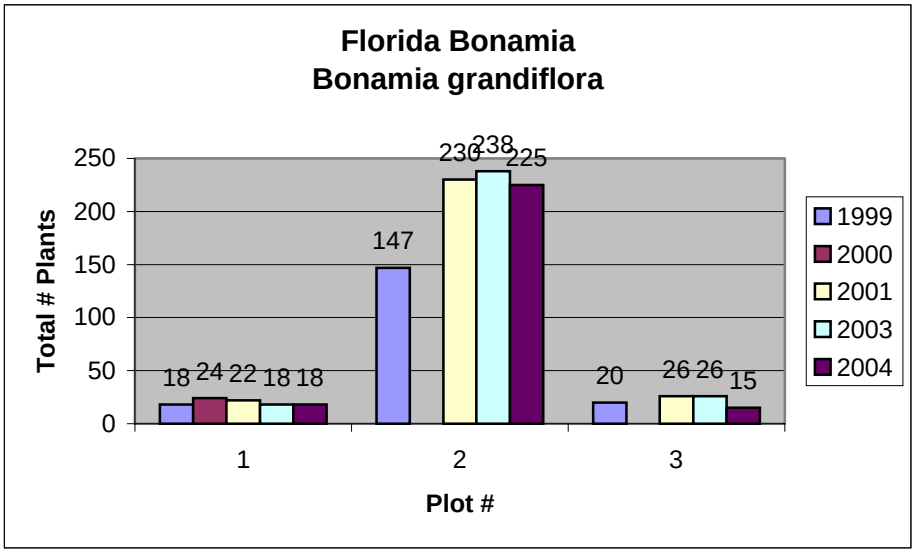


Figure 1. Ecosystem Plot Data for Florida Bonamia
Number of plants/plot

Evaluation: Current and planned management practices may ensure an adequate amount of the plant's early successional habitat. On the National Forest, the greatest threat is fire exclusion

or lack of some other type of disturbance to remove the overstory and midstory of the scrub habitat at intervals short enough to prevent loss of this component between disturbances. The Forest Service frequently burns the longleaf pine/wiregrass sandhill community. Where Florida Bonamia occurs in this community, it appears to respond well to a fire return interval of every two to three years as occurs in Plot # 2.

5-Year Trends: Available data for this species is inclusive to identify a trend.

Scrub Buckwheat (Eriogonom longifolium**)**

Results: FNAI shows 92 records of occurrence in eight counties from Putnam County south to Highlands County. The US Forest Service completed a survey on the Ocala in 1994, finding scrub buckwheat in 54 stands.

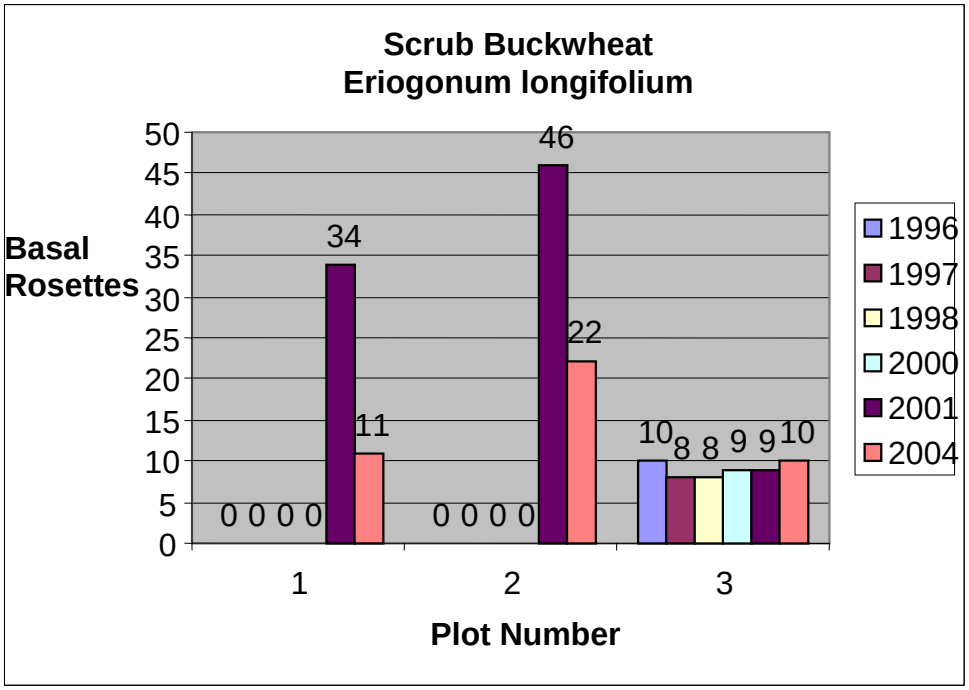


Figure 2. Ecosystem Plot data for Scrub Buckwheat
Number of plants/plot

Evaluation: On the National Forest, the greatest threat is fire exclusion or lack of some other type of disturbance to remove the overstory and midstory of the scrub habitat at intervals short enough to prevent loss of this component between disturbances. Scrub buckwheat appears to do best under a fire return interval (disturbance) of two to three years. Little data is available on the effects of mechanical disturbance on Eriogonum longifolium, however mechanical disturbance is considered a threat to the species.

5-Year Trends: Available data for this species is inclusive to identify a trend.

Harper's Beauty (Harperocallis flava)

Results: There are ten records of occurrence in Liberty and Franklin Counties, all of which are within the boundaries of the Apalachicola Ranger District. Harper's Beauty was recently discovered in Bay County on private property. The majority of the population was originally thought to be on or adjacent to the right of way of State Road 65, which runs north and south through the Apalachicola National Forest. Since 1992, the US Forest Service has conducted numerous surveys following fire. These surveys have revealed numerous populations growing in natural habitat. No plots were revisited in FY 2004 because these plants are primarily visible only following fire.

Evaluation: The aggressive prescribed burning program by the Apalachicola National Forest has been effective in improving and maintaining habitat. The greatest shortcoming in the burning program is that much of the burning is under conditions where prescribed fires often fail to burn the ecotones where Harper's Beauty occurs. The State Road 65 right-of-way belongs to the National Forest, and is under special use permit to the State of Florida. This gives the Forest Service considerable control over maintenance and other activities taking place on the right-of-way, making it possible to protect the roadside plants. The Forest Service attempts to restrict mowing to late in the growing season, after the roadside Harper's Beauty has been inspected and the seeds found to be mature. The timing of this mowing must be precise, however, and due to lack of coordination between the State of Florida Department of Transportation and the Forest Service, unauthorized mowing sometimes occurs. Most other construction and maintenance activities occur within 6 feet of the pavement.

This is not the case with the Apalachicola Northern Railroad, which runs north and south through the Apalachicola Ranger District, paralleling State Road 65 to the east. The railroad company, and not the Forest Service, owns this right-of-way which also supports a small component of Harper's Beauty.

There is a potential threat to the roadside plants on State Road 65 from inadvertent use of herbicides on the Railroad Company's right-of-way and from unauthorized construction work on the right–of-way. Those plants along the railroad right-of-way are not protected and could be eliminated by herbicide use and other maintenance or construction activities by the owner.

The Forest Plan has an objective that calls for prescribed burning on average every three years. Standard VG-4 calls for locating and perpetuating seepage bogs and savannahs and Standard VG-18 was designed to limit mechanical site preparation and other soil disturbing activities in wiregrass communities. These standards should provide considerable protection for Harper's Beauty and if the goal of prescribed burning on a three-year average is aggressively pursued, sufficient suitable habitat may be maintained on the Apalachicola National Forest for this plant to persist. The greatest threats are the use of mechanized equipment in the suppression of wildfires and during timber harvest, and reduction of the

overstory during unevenaged cuts which may reduce the needle cast of the remaining basal area to a point that fire does not carry sufficiently to maintain the habitat.

In 1999 three plots were established to monitor Harperocallis flava. Plots two and three have been sampled three times. Plot one was established in an area where *H. flava* was thought to occur, however, it was not during the flowering season and there appears to be none in the plot. Plans are to establish a new plot. The Forest Service needs to increase coordination with the State DOT to time mowing with flowering, and to also work with the Railroad company to improve the habitat for this species along the right-of-way they own.

5-Year Trends: Available data for this species is inclusive to identify a trend.

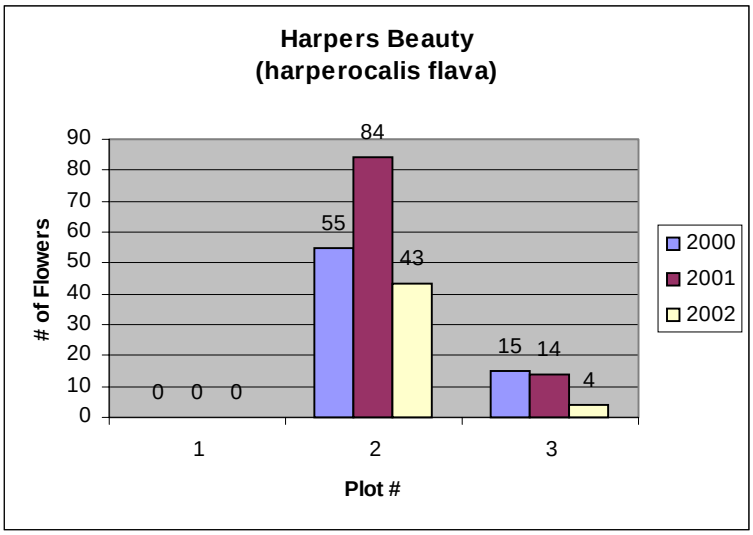


Figure 3. Ecosystem Plot data for Harper's Beauty Number of flowers/plot

White Birds-in-a-Nest *(Macbridea alba)*

Results: There are 66-recorded occurrences from four central Florida panhandle counties. The Apalachicola Ranger District occupies a considerable part of two of these counties, Franklin and Liberty. In the last ten years, the forest service has performed a number of surveys, mostly following burns.

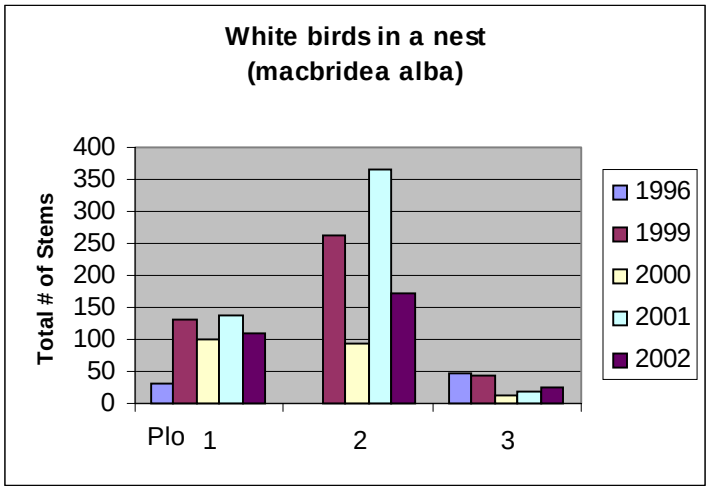


Figure 4.Ecosystem Plot Data for White-birds-in-a-Nest
Number of stems/plot

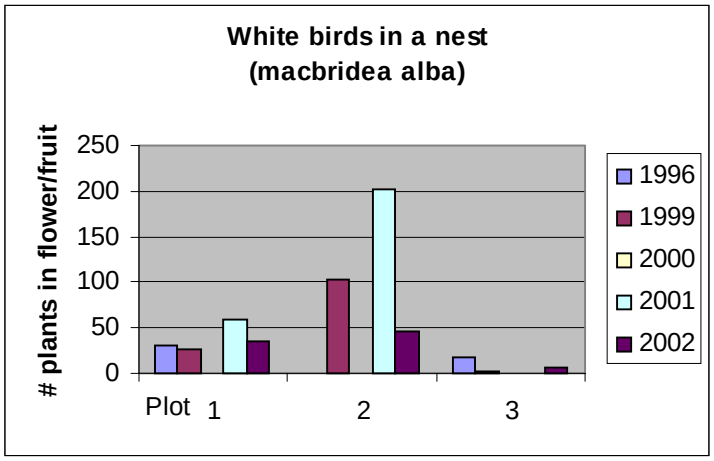


Figure 5. Ecosystem Plot Data for White-birds-in-a-Nest
Number of plants flowering/fruiting per plot

Evaluation: The greatest threats to Macbridea are mechanical disturbance, most often associated with site preparation and fire suppression. In the last ten years, the Apalachicola National Forest has stopped most clearcutting and more importantly has largely curtailed intensive mechanical site preparation, sparing habitat degradation. The aggressive burning program on the Apalachicola can be credited with restoring and maintaining suitable habitat.

5-Year Trends: Available data for this species is inclusive to identify a trend.

Godfrey's Butterwort *(Pinguicula ionantha)*

Results: There are 62-recorded occurrences from five central Florida panhandle counties. The Apalachicola Ranger District occupies a considerable part of the land area of two of these

counties, Liberty and Franklin. In the last ten years the Forest Service has performed a number of field surveys for Godfrey's Butterwort. These surveys have provided the Forest Service with better knowledge of the distribution of this species on the National Forest.

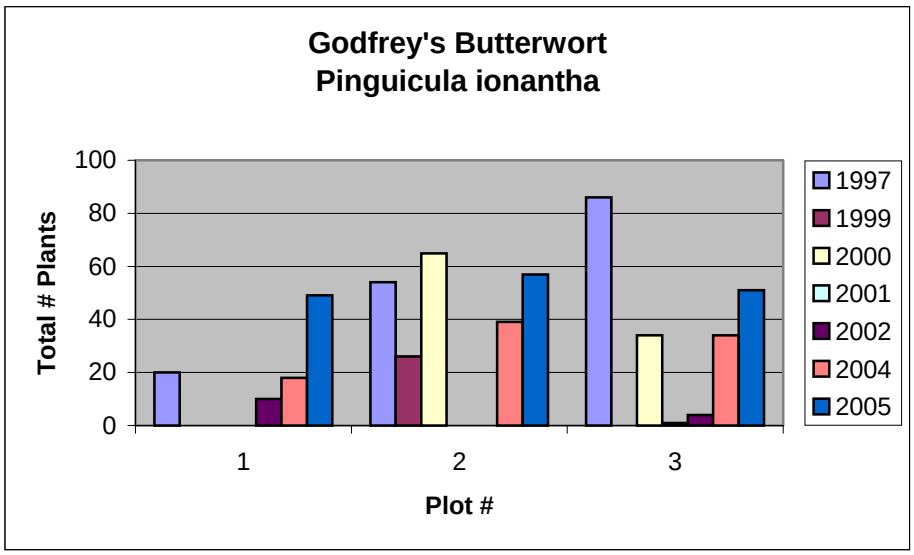


Figure 6. Ecosystem Plot Data for Godfrey's Butterwort Number of plants/plot

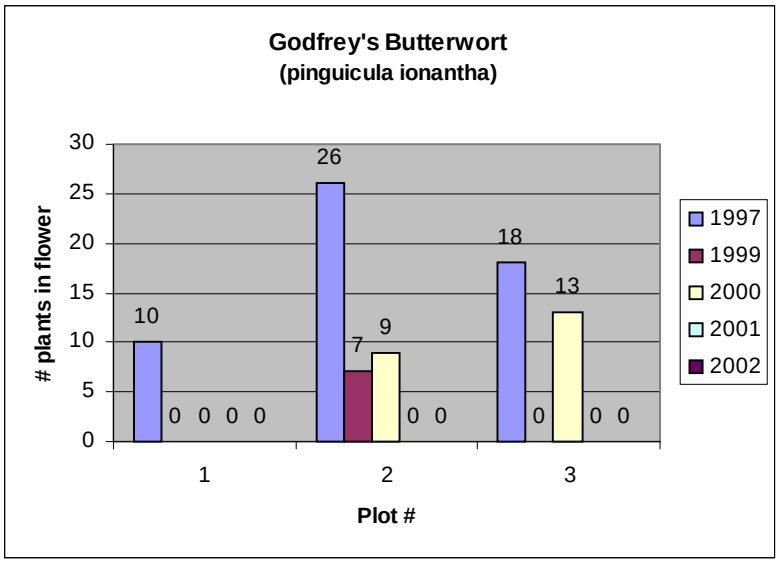


Figure 7. Ecosystem Plot Data for Godfrey's Butterwort Number of flowers/plot

Evaluation: The greatest threat to Godfrey's Butterwort is habitat loss, due primarily to ditching and draining habitat for conversion to pine plantations and fire suppression. Ditching and bedding eliminates not only many individual plants, it permanently alters the hydrology. Few survivors can compete in the densely planted pines and encroachment by woody shrubs

resulting from fire suppression. In the last ten years such activities have been significantly curtailed on the Apalachicola National Forest. VG-18 of the Revised Plan provides some protection for Godfrey's Butterwort and the objective to prescribe burn on average of three years should help to maintain suitable habitat if burning is done under conditions that fire will frequently reach such habitat. Burning during the spring drought, which frequently occurs during May and June, or burning in other seasons during especially dry conditions is essential to maintaining this type of habitat.

5-Year Trends: Available data for this species is inclusive to identify a trend.

Small lewtons milkwort *(Polygala lewtonii*)

Results: There are 36 occurrence records from six central Florida counties, beginning in Marion County south to Highlands County. A 1993 survey by the US Forest Service found the species in ten stands on the Ocala National Forest.

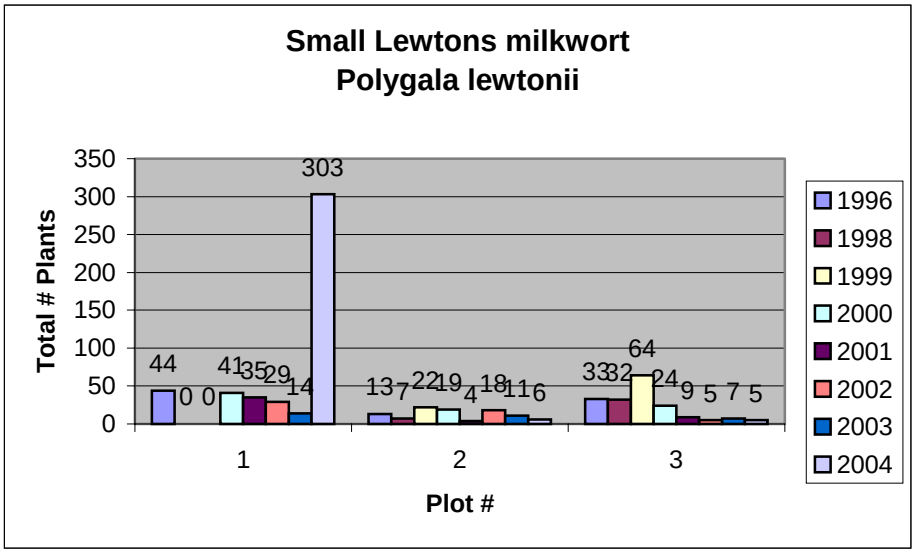


Figure 8. Ecosystem Plot Data for Lewton's Polygala Number of plants/plot

Evaluation: The greatest threat is fire exclusion or lack of some other type of disturbance to remove the overstory and midstory of the scrub habitat at intervals short enough to prevent loss of this component between disturbances. Lewton's Polygala appears to do best under a fire return interval (disturbance) of two to three years as occurs in Plot #1.

5-Year Trends: The number of plants/plot have slightly decreased in later years. This may be a result of an inability to burn some of the plots in the past 2-3 years because of hot, dry conditions that preclude burning.

Florida Skullcap *(Scutellaria floridana*)

Results: There are 23-recorded occurrences in three counties of the central Florida panhandle. The Apalachicola Ranger District occupies a considerable amount of the land area of two of these counties, Liberty and Franklin. In the last ten years, the Forest Service has conducted field surveys to establish the distribution of the species on the National Forest. These surveys, following fire, have resulted in the collection of considerable information on the distribution of the species on the forest. No plot data was collected in 2004 because this species is best assessed following fire.

Evaluation: The greatest threats to Florida Skullcap are mechanical disturbance and fire suppression. In the last ten years the Apalachicola National Forest has stopped most clear cutting and more importantly has largely curtailed intensive mechanical site preparation, sparing habitat degradation. The aggressive burning program on the Apalachicola can be credited with restoring and maintaining suitable habitat. VG-18 of the Forest Plan provides considerable protection for Florida Skullcap and its habitat. The objective to prescribe burn on average of every three years should encourage and maintain high quality habitat. If accomplished, this direction should help provide suitable habitat for Florida Skullcap.

5-Year Trends: Available data for this species is inclusive to identify a trend.

Wiregrass *(Aristida beyrichiana)*

Results: Wiregrass is distributed over all three of the National Forests in Florida and is a dominant or co-dominant of a number of communities. Many of the wiregrass-dominated communities on the National Forests in Florida are in relatively good ecological condition. This indicates they have not been significantly impacted by mechanical disturbance and fire has entered frequently enough to prevent significant encroachment by woody plants. However, a significant amount of the wiregrass communities were converted in the past to pine plantations, or mechanically disturbed in other ways. In other cases woody shrubs, hardwood trees, and species of pine not native to these communities such as slash pine or sand pine encroached into wiregrass habitat.

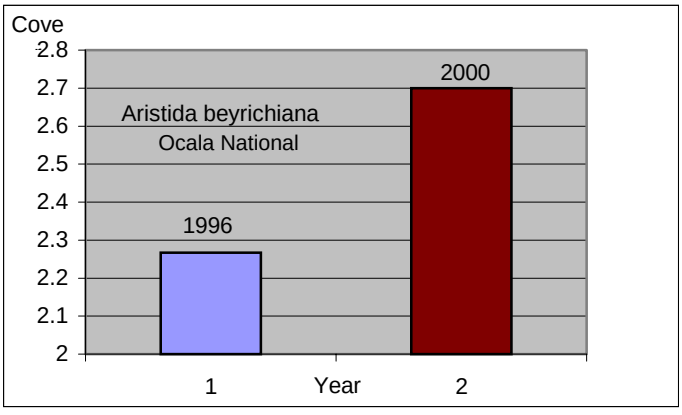


Figure 9. Ecosystem Plot Data for Wiregrass
Percent (%) area coverage in plots

Evaluation: The greatest threat to wiregrass is not being able to reach a 3-year burn regime. Other significant threats include the use of mechanized equipment in the suppression of fires and the use of vehicles off established roads and trails.

5-Year Trends: Available data for this species is inclusive to identify a trend.

Toothache Grass *(Ctenium aromaticum)*

Results: Toothache Grass, much like wiregrass, is a long-lived perennial bunchgrass that is sensitive to mechanical disturbance and heavily dependent on fire. It is found in mesic to poorly drained flatwoods, wet savannahs, and ecotones between pinelands and wetlands. Like wiregrass, it is not considered to be imperiled, but is an important indicator of the ecological health of the communities of which it is a component. The range of Toothache Grass includes all five districts of the National Forests in Florida, making it a useful management indicator on all districts.

Evaluation: The greatest threat to toothache grass is not being able to reach a 3-year burn regime. However, the Forest is aggressively pursuing this prescribed burning goal. Other significant threats include the use of mechanized equipment in the suppression of fires and the use of vehicles off established roads and trails.

5-Year Trends: No trend data is available.

Sand Live Oak (*Quercus geminata)*

Results: Sand Live Oak was selected as an indicator of the oak dome communities that occur as inclusions within the longleaf pine islands on the Ocala National Forest. The communities referred to as longleaf pine islands are actually longleaf pine/turkey oak/wiregrass sandhill communities that occur within the scrub communities on the Ocala National Forest. There was a concern that efforts to maintain and restore these longleaf pine islands would overlook the oak domes, which were historically and continue to be important inclusions.

Evaluation: While sand live oak occurs on all five districts of the National Forests in Florida, and in other vegetative communities as well as in oak domes, it is regarded as a management indicator only on the two districts of the Ocala National Forest. It may, however, encroach into the longleaf pine/wiregrass communities if the fire return interval is to long. In this case, excessive encroachment by sand live oak would indicate ecological degradation.

5-Year Trends: No trend data is available.

Curtiss Dropseed *(Sporobolus curtissii)*

Results: Curtiss Dropseed is a component of the mesic to poorly drained longleaf pine flatwoods. It has been observed on four of the five districts of the National Forests in Florida. Curtiss Dropseed is usually a co-dominant species in the groundcover, with such species as wiregrass and saw palmetto (*Serenoa repens*). It is a long-lived perennial bunch grass that

depends heavily on fire and is sensitive to mechanical disturbance. It is distributed widely enough to be of value as a management indicator on a considerable portion of the National Forests in Florida. Curtiss Dropseed is ranked G3 by the Nature Conservancy and is proposed for inclusion on the next revision of the Region 8 Sensitive Species List.

Evaluation: The greatest threat is not being able to reach a 3-year burn regime. However, the Forest is aggressively pursuing this prescribed burning goal. Other significant threats include the use of mechanized equipment in the suppression of fires and the use of vehicles off established roads and trails.

5-Year Trends: No trend data is available.

Florida Dropseed *(Sporobolus floridanus)*

Results: Florida Dropseed is a component of the mesic to poorly drained longleaf pine flatwoods communities, flatwoods depressions, wet savannahs, and ecotones between pine flatwoods and wetlands. It is known to occur on both districts of the Apalachicola National Forest and on the Osceola Ranger District. It may potentially occur on the Ocala National Forest, but there are no known records of occurrence. It is a long-lived perennial bunch grass, heavily dependent on fire and sensitive to mechanical disturbance.

Evaluation: The greatest threat is not being able to reach a 3-year burn regime. However, the Forest is aggressively pursuing this prescribed burning goal. Other significant threats include the use of mechanized equipment in the suppression of fires and the use of vehicles off established roads and trails. Florida dropseed is well distributed and is not in danger of declining as long as the Forest continue to pursue an aggressive prescribed burn program.

5-Year Trends: Data is inclusive to identify a trend.

Pineywoods Dropseed *(Sporobolus junceus)*

Results: Pineywoods Dropseed is known from both districts of the Apalachicola National Forest and both districts of the Ocala National Forest. There is some potential of occurrence on the better drained areas of the Osceola National Forest, but there are no records of occurrence on that forest.

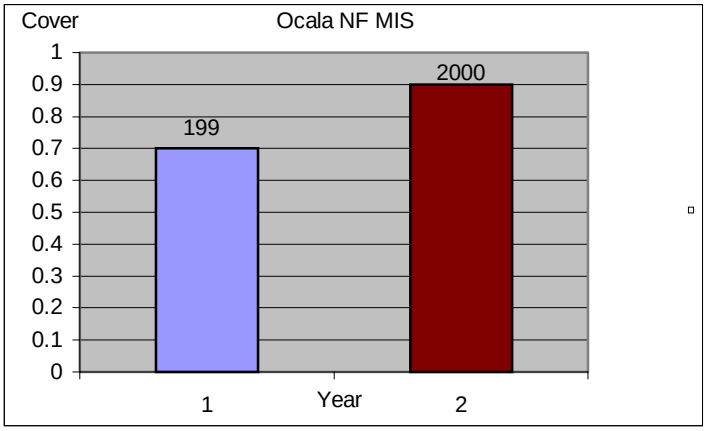


Figure 10. Ecosystem Plot Data for Pineywoods Dropseed
Percent (%) area coverage in plots

Pineywoods Dropseed is not considered imperiled, but the sandhill community that supports it is ranked G2G3. The species distribution is broad enough on the forest for it to serve as a management indicator on the sandhill communities over much of the National Forests in Florida.

Evaluation: The greatest threat is not being able to reach a 3-year burn regime. However, the Forest is aggressively pursuing this prescribed burning goal. Other significant threats include the use of mechanized equipment in the suppression of fires and the use of vehicles off established roads and trails. Pineywoods dropseed is well distributed and is not in danger of declining as long as the Forest continue to pursue an aggressive prescribed burn program.

5-Year Trends: Data is inclusive to identify a trend.

Xyris stricta

Results: *Xyris stricta*, an obligate wetland species, is a component of the groundcover of the cypress (*Taxodium ascendens*) domes and strands. It is known from both districts of the Apalachicola National Forest and from the Osceola National Forest.

The structures of the communities in which *Xyris stricta* occurs, are dependent on relatively frequent fire to maintain a graminoid-dominated groundcover with little midstory development. *Xyris stricta* is thought to serve as a good indicator of the ecological health of these fire dependent wetlands.

Evaluation: According to the Forest Plan, cypress dominated wetland communities are not suitable for timber harvest. For this reason, there should be few impacts by forest service projects to these communities. The greatest threat is the lack of allowing fire to enter on a frequency enough to maintain community structure and composition. Another threat is the use of mechanized equipment in the suppression of fire. *Xyris stricta* is well distributed in cypress domes and strands and is not in danger of declining as long as the Forest continue to protect restrict timber harvest and other activities in cypress domes and strands.

5-Year Trends: Data is inclusive to identify a trend.

Wildlife and Fish

Southern Bald Eagle (*Haliaeetus leucocephalus leucocephalus*)

Results: Bald eagles currently nest along the St. John's River, and serve as an indicator of bottomland forest, floodplain swamp, and lake/pond habitat. Table 1 shows twelve years of monitoring results for bald eagle pairs on the National Forests in Florida.

Table 1.
Number of Bald Eagle Pairs
National Forests in Florida

Year	Apalachicola. NF	Osceola NF	Ocala NF
1992	1	0	20
1993	0	0	31
1994	0	0	37
1995	0	0	40
1996	0	0	32
1997	2	0	23
1998	2	0	54
1999	0	0	47
2000	0	0	48
2001	1	0	54
2002	1	0	49
2003	2	0	55
2004	2	0	63

In 1999 and 2000, the Ocala National Forest produced 55 and 60 downy young, respectively. Of these, 54 fledglings were successfully produced each year with survival rates of 98% and 90% respectively. In 2002, the Apalachicola fledged one and the Ocala eagle population fledged 46 eaglets. In 2003, the Apalachicola fledged 4 young and the Ocala fledged 45. In 2004, the Apalachicola fledged 3 young and the Ocala fledged 36. Chicks documented to survive to 8 to 11 weeks are assumed fledged, based on 93% (41 of 44) survival rate of 7-8 week-old chicks documented in: *Wood, P. W. and M. W. Collopy. 1995. Population ecology of subadult southern bald eagles in Florida: post-fledging ecology, migration patterns, habitat use and survival. Florida Game and Fresh Water Fish Commission Nongame Project NG87-026. Tallahassee, FL. 111pp.* The bald eagle population on the Ocala National Forest has been stable to increasing for the past 10 years, and the Apalachicola population is now beginning to increase.

Table 2.
Active Nests/Fledglings
National Forests in Florida

Year	Apalachicola NF	Osceola NF	Lake George RD	Seminole RD
1992	0/0	0/0	19/22	1/1
1993	0/0	0/0	28/19	3/3
1994	0/0	0/0	35/38	2/5
1995	0/0	0/0	36/32	4/3
1996	0/0	0/0	30/32	2/1
1997	0/0	0/0	22/18	1/2
1998	0/0	0/0	47/41	7/3
1999	0/0	0/0	44/52	3/2
2000	0/0	0/0	43/49	5/5

Year	Apalachicola NF	Osceola NF	Lake George RD	Seminole RD
2001	1/1	0/0	47/50	7/7
2002	1/2	0/0	44/47	7/8
2003	2/4	0/0	43/42	5/3
2004	2/3	0/0	47/31	6/5

Evaluation: The desired outcome is a stable to increasing number of fledglings produced each year. Currently, the trend appears to be stable to slightly increasing, with annual fluctuations. Based on the reliable nesting and reproduction data for eagles on the Ocala National Forest, and the protection of hardwoods and cypress stands provided by forest-wide standard VG-8, viable populations of the eagle are expected to persist into the future.

5-Year Trends: Active nests and fledglings appear to be relatively stable over the last 5 years.

Northern Bobwhite (*Colinus virginianus)*

Results: The bobwhite quail serves as an indicator species for sandhill and flatwoods communities on the National Forests in Florida. Call count routes in cooperation with the Florida Fish and Wildlife Conservation Commission and other monitoring methods are being used to develop information about trends for this species.

Because the FWC felt that the data was of marginal value, quail call count routes are no longer conducted universally on the National Forests in Florida. Call Count data was collected only on the Osceola in 2003 and 2004. Quail will continue to be censused, along with all other bird species, on Breeding Bird Survey (BBS) routes and at the R8 Bird Point Count locations on all three National Forests. Each BBS route is 25 miles long; typically along a minor paved road or a natural-surface forest road. Each route consists of 50 "stops", or sampling points ½ mile apart. One useful aspect of the BBS data is that it provides casual (or expert) birders a relative index of how likely it is they will see a particular species of bird along a typical forest roadside, since that's where these data are collected. To complement the BBS data, the National Forests in Florida are participating, along with other National Forests in the southeastern region, in a land bird conservation, monitoring, and inventory strategy nicknamed "R8 Bird". The R8Bird (off-road) point counts began on the Ocala districts in 1997, on the Wakulla District in 2000, and on the Apalachicola and Osceola in 2002. Each point samples approximately 2 acres of habitat and points are at least 1/2 mile apart. Point locations were established based on the protocol outlined in *"The Southern National Forest's Migratory and Resident Landbird Conservation Strategy" (USDA Forest Service, R-8, Fisheries, Wildlife, and Range Unit, June, 1996).* Bobwhite quail are one of the many species of birds sampled by this method. Quail counts from all methods are generally very low but appear to be fundamentally stable on all forests (Table 3). The low densities appear to be in accord with the distribution maps for the area published by the BBS.

Table 3. National Forests in Florida Bobwhite Quail Counts
Birds per Station

Year	Apalachicola RD: Call routes, R8Bbird,BBS	Wakulla RD: Call routes, R8Bird, BBS	Osceola RD: Call routes, R8 Bird, BBS	Lake George RD: Call routes, Riverside (R8Bird) Ocala BBS	Seminole RD: Church Lake, Tomahawk, Paisley (R8Bird)
1992	0.28, 0.08	0.54	No data, 0.02	0.2, 0.14	0.6, 2.4
1993	0.19, no data	0.19	0.24, 0	0.6, 0.1	0.9, <0.1
1994	0.18, no data	0.75	0.15, 0.10	<0.1, 0.1	0.7, 0.5
1995	0.23, 0.04	1.01	1.03, 0.08	0.9, 0.18	0.2, 0.3
1996	0.22, 0.12	0.21	0.46, no data	0.1, 0.14	1.0, 0.5
1997	0.33, 0.04	0.26	0.71, 0.08	0.1, 0.12, 0.25	0.8, 0.1, 0.8
1998	No data, 0.12	No data	0.98, 0.08	0.2, 0.06, 0.05	0.3, 0.5, 0.28
1999	No data, 0.22	No data	0.41, 0.18	0.5, 0.04, 0.13	0.9, 0.3, 0.08
2000	No data, 0.04	No data	0.08, no data	0.1, 0.14, 0.1	1.2, 1.1, 0.58
2001	No data, 0.01	No data, 0.97, 0.1	0.02, no data	No data, 0.38, 0.15	0.5, 0.9, 0.25
2002	No data, 0.08	No data, 0.1,0.1	0.0, 0.1,0.12	No data, 0.06, 0.05	0.45
2003	ND,0.47,0.06	ND,0.13,0.2	0.08,0.2,0.09	ND,0.0,0.11	0.0
2004	ND, 0.03, 0.1	ND, 0, 0.14	0.18, 0, 0.1	ND, 0.3, 0.1	0.2

Evaluation: The desired outcome is 7 or more coveys (groups of 6 – 20 birds) per 100 acres of suitable habitat with stable to increasing trend. This target was set in: *Hunter, C. et al. 2001. Partners in Flight Bird Conservation Plan for the South Atlantic Coastal Plain.* Assuming 2 acres per point, the counts range from 0 to 120 birds per 100 acres for all data collected from 1991- 2004 (Table 3). Although it is not possible to directly extrapolate from numbers of individual birds seen or heard to numbers of coveys, it is safe to say that quail populations on the Forests are secure, but.very localized. Low quail densities on the National Forests are a reflection of low densities statewide. Our data sources do not reflect consistent trends on the forests. BBS maps show a slight downward trend in those portions of the State that encompass the forest, but forest specific data does not appear to reflect any trends with any real certainty. Additional years of data collection at the R8 Bird sample points may give an improved idea of population trend in the future. A regular program of growing season prescribed burning would be beneficial to quail populations on the forests.

5-Year Trends: Data sources do not reflect consistent trends on the forests. Although it is not possible to directly extrapolate from numbers of individual birds seen or heard to numbers of

coveys, it is safe to say that quail populations on the Forests are secure but localized. Additional years of data collection at the R8 Bird sample points may give an improved idea of population trend in the future.

Pileated woodpecker (*Dryocopus pileatus)*, PIWO

Results: This species is sampled using the BBS routes and the R8 Land bird survey. The pileated is found in all seasons in Florida with primary habitats being mature and extensive forests. It occurs in both deep woods and swamps as well as in rather open and upland forests. It seems most numerous in river-bottom hardwoods. Consequently, this species was chosen as an MIS in the Forest Plan for swamp communities including bottomland forest and strand and dome swamps. On the Ocala, the species occurs in the longleaf pine and sand pine scrub communities.

Table 4.
National Forests in Florida BBS Routes
Pileated Woodpeckers Counted per Station

Year	Apalachicola	Osceola	Ocala
1992	0.08	0.14	0.04
1993	No data	0.14	0.04
1994	No data	0.14	0.04
1995	0.18	0.08	0.02
1996	0.08	No data	0
1997	0.32	0.12	0.06
1998	0.12	0.12	0
1999	0.12	0.12	0.02
2000	0.14	0.10	0.04
2001	0.22	No data	0.02
2002	0.13	0.11	0.04
2003	0.10	0.15	0.03
2004	0.12	0.14	0.03

Additional pileated woodpecker monitoring has been developed from points established as part of the R8 Landbird Monitoring strategy (Table 5). From 1997 through the present time, 40 points each on the Ocala Districts (Lake George and Seminole) were monitored. In 2000, 30 points on the Wakulla District were added. In 2002, 30 points were added on the Apalachicola Ranger District and 30 were added on the Osceola NF, for a total of 170 points on the National Forests in Florida. An additional 5 points were added to the Pinhook portion of the Osceola in 2004, bringing our current total bird survey points to 175.

Table 5.
Pileated Woodpecker
R8 Landbird Monitoring - Birds per Point

Year	Apalachicola NF	Lake George RD	Seminole RD	Osceola NF
1997	No data	0.28	0.05	No data
1998	No data	0.18	0.28	No data
1999	No data	0.18	0.25	No data

Year	Apalachicola NF	Lake George RD	Seminole RD	Osceola NF
2000	0.06	0.10	0.13	No data
2001	0.13	0.40	0.23	No data
2002	0.13	0.13	0.10	0.17
2003	0.2	0.17	0	0.03
2004	0.4	0.05	0.18	0.37

Evaluation: The desired outcome is a stable to increasing trend. BBS trend data for the state indicate that this species has been stable to slightly increasing in Florida since 1966. Considered separately, the National Forest BBS routes show a slightly declining trend. Data from the R8 Bird routes is still too limited to make any population trend inferences. Forest plan standards and guides (VG-8, VG10, VG-11, VG-12) exclude hardwood stands from management for timber production and will retain large pine trees across the landscape that will eventually become the large snags necessary for pileated woodpecker nesting habitat. Adherence to these standards is expected to retain viable and increasing populations of this woodpecker across the National Forests in Florida.

5-Year Trends: BBS trend data for the state indicate that this species has been stable to slightly increasing in Florida since 1966. Considered separately, the National Forest BBS routes show a slightly declining trend. Data from the R8 Bird routes is still too limited to make any population trend inferences.

Prothonotary Warbler (*Protonotaria citrea)***, PROW**

Results: Like the pileated woodpecker, this warbler's key habitat requirements include swamps or bottomlands. Standing water and cavities in stumps, stub branches, or dead trees are necessary for nesting. The species is a secondary cavity nester; dependent on other species to excavate the cavities it uses for nesting. Because it is much smaller than the pileated woodpecker discussed above, it can nest in cavities in smaller trees; it will accept trees with a DBH as small as 6 inches *(P. Hamel, The Land Manager's Guide to Birds of the South.* This species is a neotropical migrant, wintering south of the United States. It arrives in late March to mid-April and departs in mid-August to mid-September. Detections of this species are variable on the BBS routes for the National Forests in Florida. BBS trend maps show a downward trend in Florida, but trends on the National Forests are unclear.

Table 6.
National Forests in Florida BBS Routes
Prothonotary Warblers Counted per Station

Year	Apalachicola	Osceola	Ocala
1992	0.46	0	No habitat on route
1993	No data	0.08	No habitat on route
1994	No data	0.06	No habitat on route
1995	0.58	0.04	No habitat on route
1996	0.56	No data	No habitat on route

Year	Apalachicola	Osceola	Ocala
1997	0.40	.04	No habitat on route
1998	0	0	No habitat on route
1999	0.56	0.04	No habitat on route
2000	0.46	0	No habitat on route
2001	0.34	No data	No habitat on route
2002	0.25	0.05	No habitat on route
2003	0.3	0.06	" "
2004	0.4	0.05	No habitat on route

Table 6a.
National Forests in Florida R8 Bird Routes
Prothonotary Warblers Counted Per Station

Year	Apalachicola	Osceola	Ocala
1997			0
1998			0
1999			0
2000	0.07		0
2001	0.17		0
2002	0	0.1	0
2003	0.08	0.13	0
2004	0	0.06	0

Evaluation: The desired outcome is 15 or more pairs per 100 acres of suitable habitat with stable to increasing trend. This target is from: *Hunter, C. et al. 2001. Partners in Flight Bird Conservation Plan for the South Atlantic Coastal Plain.* Data is highly variable, ranging from 0-29 pairs/100 acres (assuming 2 acres per point for data in Table 6). Continued monitoring with R8 Bird points in addition to the BBS routes should produce a better picture over time, but species viability appears secure in the short term.

5-Year Trends: Data from the R8 Bird routes is still too limited to make any population trend inferences.

Southeastern Kestrel (*Falco sparverius)*, **AMKE**

Results: The kestrel was selected as an MIS to monitor the health of early seral stage sandhill and scrubby flatwoods. Breeding bird survey route and R8 Bird point detections have so far been limited to the Ocala National Forest (Table 7).

Table 7.
Southeastern Kestrels Counted per Point

Year	Ocala BBS	Lake George R8Bird	Seminole R8Bird
1992	0.04		
1993	0.02		
1994	0.04		
1995	0.02		
1996	0		
1997	0	0.08	0.13
1998	0.02	0.03	0.13
1999	0.02	0.03	0.13
2000	0.10	0.10	0.08
2001	0.04	0.10	0
2002	0.04	0	0
2003	0.02	0.03	0.08
2004	0.03	0.1	0.05

Kestrel nest boxes are monitored for occupancy on the Lake George RD (Table 8). In 2002, time constraints prevented monitoring of all nest boxes. Thirty new kestrel nest boxes were installed on the Lake George District in 2002. Forty-seven kestrel boxes were built and installed in 2003, and 8 new boxes were installed in 2004, but a lack of staffing prevented monitoring of kestrel occupancy in either 2003 or 2004. Previous box checks have shown that 69% of the boxes were occupied by cavity nesting birds: 33% kestrel, 31% screech owl, and 5% great-crested flycatcher.

Table 8.
Kestrel Nest Box Checks
Lake George RD

Year	Boxes Checked/ Used by Kestrel	% Used
1992	127/23	18
1993	118/16	13
1994	201/31	15
1995	154/36	23
1996	147/31	21
1997	Not Surveyed	-
1998	72/33	48
1999	6/2	33
2000	77/30	39
2001	34/14	41
2002	1/1	100
2003	Not Surveyed	-
2004	Not Surveyed	-

Evaluation: The desired outcome is a stable to increasing trend. While the BBS trend maps show a declining trend in Florida, forest data is still too limited to make a reasoned judgment for the National Forests. Besides being cavity nesters, kestrels are open area hunters, so the emphasis on sand pine regeneration and placement of nest boxes should enable the southeastern kestrel to persist as a viable species on the Ocala National Forest.

5-Year Trends: While the BBS trend maps show a declining trend in Florida, forest data is still too limited to make a reasoned judgment for the National Forests.

Wild Turkey (*Meleagris gallopavo),* **WITU**

Results: This species is found on the National Forests in Florida during all seasons of the year. It is rare over much of the coastal plain, but common in bottomland habitats. It is also found in a variety of other habitats including upland hardwoods, mixed forests, and pine forests.

The BBS routes on the Apalachicola National Forest have not been recording significant numbers of turkeys. Turkeys are too wary of humans to be counted accurately using a point count method. Track count transects conducted in cooperation with the FWC have, however, detected turkeys at very low densities. Approximately 200 miles of road transects have been surveyed annually since 1993 for tracks on both ranger districts. FWC staff have developed the following track indices. Extrapolation for 2004 was not available at the time of publication.

Table 9.
Wild Turkey Tracks/mile - Apalachicola National Forest

Year	Wakulla RD	Apalachicola RD
1993	0.17	0
1994	0.02	0
1995	0.10	0.30
1996	0.40	0.20
1997	0.30	0.30
1998	0.20	0.30
1999	0.36	0.25
2000	0.60	0.83
2001	0.17	0.17
2002	0.26	0.0
2003	0.57	0.09

The BBS route on the Osceola National Forest has not been recording any significant numbers of wild turkeys. As mentioned for the Apalachicola BBS, point counts are not a good method for sampling turkey populations. Thirty-five permanent plots for implementation of the R8 landbird monitoring strategy have been installed on the forest, but it is unlikely

these samples will yield any good population information for the same reasons the BBS points do not yield good wild turkey population data. There are no track count indices for this area available from the FWC, although they are comfortable enough with the population that spring turkey hunting has been permitted since 1980. Forest Service personnel routinely report incidental sightings of both adult and juvenile birds but there is not yet any consistent data on this species for the Osceola National Forest.

The Ocala National Forest monitors baited stations using the methods of: *Cobb, David. 1990. Survey Techniques for Wild Turkeys in Florida. Florida Game and Fresh Water Fish Commission. Tallahassee, FL. 23pp.*

The Ocala National Forest has also been cooperating with the Florida Fish and Wildlife Conservation Commission in determining trends from track counts of wild turkeys. Commission biologists have determined a notable upward trend in wild turkeys on the forest. This trend is reflected by the Commission's decision in 1997 to institute a limited area spring hunt on the Forest for the first time. The Commission opened spring hunting across the entire forest in 2000.

Table 10.
Ocala National Forest - Turkey Monitoring Sites

Year	FFWCC Transects with Tracks	Lake George Bait Stations - % Active, birds seen per station
1991-92	24	
1992-93	23	
1993-94	31	55, 0.4
1994-95	84	38, 0.2
1995-96	59	56, 0.2
1996-97	105	43, 0.4
1997-98	142	74, 1.5
1998-99	132	72, 0.4
1999-00	129	54, 0.6
2000-01	134	44, 0.2
2001-02	108	46, 1.0
2002-03	98	67,3.2
2003-04	68	No Data

The FFWCC turkey track counts have represented an upward trend in the number of turkeys on the Ocala National Forest, even though the last three years show a downward trend. The Lake George Bait Station data contradicts this information with a considerable increase in activity and birds seen. Due to hurricane activity during the monitoring period, the bait stations were not run in 2004. The permitted hunting trend in Table 11 shows Commission confidence in an increasing population trend sufficient to support sport hunting.

Table 11.
Ocala National Forest - Turkey Permits

Year	Permits Issued/Harvest
1997-98	400/unknown
1998-99	400/unknown
1999-00	400/unknown
2000-01	1460/35
2001-02	1460/36
2002-03	1460/46
2003-04	1186/34

Evaluation: The desired outcome is a stable to increasing trend. The wild turkey is present and populations appear to be stable at low densities on both the Apalachicola and Osceola National Forests. Trends are clearly upward on the Ocala National Forest, with population increases such that the Florida Fish and Wildlife Conservation Commission instituted sport hunting on the Ocala National Forest for the first time in 1997. State biologists have not expressed any reservations about viable populations of the turkey on any of the three National Forests in Florida.

5-Year Trends: The wild turkey is present and populations appear to be stable at low densities on both the Apalachicola and Osceola National Forests. Trends are rather obscure with such low densities, but this species appears to be stable on the Apalachicola National Forest. Trends are clearly upward on the Ocala National Forest, with population increases such that the Florida Fish and Wildlife Conservation Commission instituted sport hunting on the Ocala National Forest for the first time in 1997.

Florida black bear (*Ursus americanus floridanus)*

Results: The black bear once ranged across the state, but is now estimated to occupy only 27% of its former range. Five major populations have been identified including Eglin Air Force Base, the ***Apalachicola, Osceola,* and *Ocala National Forests***, and Big Cypress Swamp.

The Ocala population area includes approximately 2.2 million acres of high quality bear habitat, of which approximately 384,000 acres are in National Forest ownership. The Fish and Wildlife Service noted that the State's 1994 estimate of 125 bears for the Ocala National Forest was too small. This finding appears to be supported by additional study being conducted by the FWC in cooperation with the Ocala and the Florida Department of Transportation. This study, centered on State Route 40 where it passes through the Forest, reported 252 captures of 204 separate bears between May 1999 and December 31, 2002. Almost equal portions of the Seminole RD and Lake George RD are included in the study area. During the second 6 months of the study, 11 bears were captured in only 20 trap nights of effort. The study area encompasses less than 25% of the Ocala National Forest, and the study area's population was estimated to total between 70-186 individual bears during the summer of 1999. Radio telemetry data indicated that of more than 200 road crossings of S.R. 19 and S.R. 40, only one study animal was killed in a vehicle collision. This occurred on S.R.

40, the highest road kill area for bears in Florida. While the study area is predominantly sand pine habitat, bottomland forest habitat exemplified by the Ocklawaha River system is also desirable bear habitat.

Black bear monitoring has been ongoing on the Ocala National Forest in cooperation with Commission biologists for many years. Track count monitoring is being accomplished annually with the results shown in Table 12.

Table 12.
Black Bear Track Count Indices
Ocala National Forest

Year	Tracks/100 miles
1991-92	24
1992-93	26
1993-94	21
1994-95	39
1995-96	27
1996-96	33
1997-98	44
1998-99	31
1999-00	56
2000-01	67
2001-02	55
2002-03	50
2003-04	73

The 1996-1999 US Fish and Wildlife Service/Osceola National Forest/FWC/Georgia Department of Natural Resources Okefenokee-Osceola bear study area encompassed two study areas, one each in Georgia and Florida. The Florida portion (approximately 100,000 ac) included the southwest portion of Pinhook Swamp, the western portion of Impassable Bay, and adjacent private timber company lands. Private lands predominated. Study personnel captured 79 individual bears in Florida from 1996-1999.

Six bear deaths were documented on the Florida study area over this period. One death (June, 1999) was a road-kill near Eddy Tower on FL Hwy 2, east of Forest Service lands in Pinhook Swamp. Three additional deaths were the result of poaching. By contrast, the Georgia study area incurred 70 bear deaths from 1995-1999. Legal hunting accounted for 57, poaching for 7 and only 2 were road-killed bears. Bear hunting is legal in Georgia but has been indefinitely suspended in Florida.

For the period 1976 – 1992, 7 of 317 (2.2%) bear road-kills statewide were documented in Baker and Columbia Counties, which encompasses the Osceola National Forest. Commission biologists did not identify any chronic road-kill problem areas on the forest.

The FWC views the northern portion of the Osceola as a desirable area for translocation of "problem" bears from other parts of the state. A moratorium on these translocations was in effect from 1995-1999 so as not to interfere with the Okefenokee-Osceola bear study. Translocations have resumed however, and a new, more specific bear relocation policy has recently been worked out between FWC and the Forest Service.

Track counts are conducted on the Apalachicola National Forest in cooperation with Commission biologists (Table 13.). As previously noted, the Apalachicola National Forest is one of the five major black bear population sites in the state.

Table 13.
Black Bear Track Counts - Apalachicola National Forest
Tracks/100 miles

Year	Apalachicola RD	Wakulla RD
1993	2	3
1994	1	1
1995	1	1
1996	0	4
1997	12	4
1998	16	11
1999	14	19
2000	3	10
2001	2	15
2002	2	10
2003	2	35

Evaluation: The desired outcome is a stable or slightly increasing population trend, and a decrease in nuisance bear complaints. Track counts ranged from 0 to 4 per 100 miles on the Apalachicola in 1991-96, and increased to a high of 33 in 1999. From 2000 through 2003, the Apalachicola as a whole averaged 19.75 tracks per 100 miles.

Track counts averaged 31 per 100 miles on Ocala in 1991-98, and increased to 56 and 67 in 1999 and 2000, respectively. For 2002-2003, the Ocala track count dropped off to 50 per 100 miles, but for the 2003-04 year the track count was the highest it has ever been at 73 tracks per 100 miles. The bear population on the Ocala NF has been influenced by relocation of 44 nuisance bears from other areas in 1999-2001. In 2001-2002, there were 241 bear complaints filed, as opposed to 95 in 2000-2001. In 2002-2003, 294 bear complaints were filed on the Ocala. During 2003-04, 216 bear complaints were filed.

Bear road kills are a serious problem on and near the Ocala National Forest. Highway 40 bisects the forest from east to west, and highway 19 bisects it from north to south. More bears are killed on these 2 highways than on any other roadway in the state. Table 14 shows the bear road kill since 1999.

Table 14. Bear road kill, Ocala National Forest

Year	Bears Killed
1999-2000	31
2000-2001	31
2001-2002	29
2002-2003	32
2003-2004	35

Commission biologists and National Forests in Florida personnel expect the black bear to maintain viable populations and probably increase on all three National Forests. Total black bear numbers across the state, however, are likely to decline as development pressures erode the habitat base for this species on private lands. The National Forests in Florida will become even more important refuges for bear populations in the future.

5-Year Trends: While an overall increasing trend appears to be occurring, FWC staff suggests that these counts should be interpreted with caution. Large annual variability can occur in these counts, and the low numbers of detected tracks constrain interpretation of this data. The black bear is expected to maintain viable populations and probably increase on all three National Forests over the 5 years remaining in the planning period.

White-tailed Deer (Odocoileus virginianus)

Results: Commission and Forest Service biologists have been cooperatively monitoring this species for many years on all three forests. Track count transects are being used routinely to obtain indications of trends. Data was not available from FWC at the time of publication.

Table 15.Track Count Monitoring – White-tailed Deer Tracks/mile

Year	Apalachicola RD	Wakulla RD	Ocala NF	Osceola NF
1992	3.81	7.63	13.6	5.5
1993	2.80	5.72	13.5	4.5
1994	3.11	3.98	14.8	ND
1995	3.10	5.23	13.8	4.1
1996	3.84	4.91	15.4	4.4
1997	6.11	5.08	12.8	6.0
1998	4.90	8.80	10.8	2.5
1999	4.20	8.50	10.5	2.3
2000	3.6	7.4	11.7	4.4
2001	3.6	7.6	10.8	2.9
2002	2.7	9.0	9.6	9.4
2003	2.2	13.2	9.5	6.4

Although track densities are low, the last ten years of data show a generally decreasing trend for the Apalachicola, an increasing trend on the Wakulla, a long term decreasing trend for the Ocala, and an erratic, but generally increasing trend on the Osceola. Commission data show a drop in hunter harvest on the Ocala that appears to parallel the decline in the track count index. Reasons for these declines are unknown at this time, but may be related to increased levels of OHV activity causing deer to move off of the area, at least temporarily during heavy OHV use periods.

Evaluation: The desired outcome is a stable to slightly increasing trend. The trend is declining on the Ocala and undetermined for Apalachicola and Osceola, because the data is highly variable. Deer have remained on the landscape at varying levels across the decades, and a viable population is assured on all three national forests.

5-Year Trends: Data show a generally decreasing trend for the Apalachicola, an increasing trend on the Wakulla, a long-term decreasing trend for the Ocala, and an erratic, but generally increasing trend on the Osceola. Commission data indicates a drop in hunter harvest on the Ocala that appears to parallel the decline in the track count index.

Sand Skink (*Neoseps reynoldsi)*

The sand skink occurs only on the Ocala National Forest and adjacent central Florida scrub habitats with loose, sandy soils.

Results: The sand skink was not monitored in 2003 or 2004 because of personnel constraints. Information reported here is based on data collections from previous years. Little is known about this species due to its fossorial habits. It is difficult to monitor, but there has been some success with detecting this creature by the use of cover board transects. On the Ocala National Forest, transects have been established in suitable habitat, each with a series of 20--12" square boards laid on cleared, sandy soil. Transects are read on a regular basis with detections showing as definitive "sine wave" tracks, caused by the skinks "swimming motion", showing under the boards. Tables 16 and 17 show the results of past monitoring.

Cover boards are monitored in March and April, during the peak period of sand skink activity. There are 20 boards each at 3 sites including a scrub site on Seminole RD, an ecotonal longleaf site on the Lake George RD, and a longleaf plantation on Lake George RD. The plantation had the least activity with 7 detections, ecotonal longleaf was intermediate with 13, and the scrub site had the most, with 19. The Lake George RD longleaf site was used for density determinations in 2000. In 2002, a survey was done of the Pinecastle Bombing Range, and sand skinks were found in a new location there. The number of known sites increased from 8 in 1990 to 32 in 2002. The Ocala National Forest is the northern periphery of the sand skink's range. Population densities are lower here than further south in the rosemary scrub of the Lake Wales Ridge.

Table 16.
Sand Skink Cover Board Detections - Ocala National Forest
Active Boards or Buckets/Total Boards or Buckets

Year	Lake George RD	Seminole RD
1992	0/302	0/0
1993	0/0	0/300
1994	0/0	0/0
1995	35/567	0/0
1996	38/461	9/40
1997	5/256	2/200
1998	30/344	0/0
1999	0/0	0/0
2000	20/40	19/20
2001	17/40	16/20
2002	0/0	6/20
2003	1/20	0/0
2004	Not Surveyed	Not Surveyed

Table 17.
Sand Skink Densities at Study Sites - Ocala National Forest

Year	Lake George RD	Seminole RD
1995	29/acre	No count
1996	14-24/acre	16/acre
1997	3/acre	No count
1998	31-111/acre	No count
2000	25-43/acre	68/acre
2001	Not Surveyed	Not Surveyed
2002	Not Surveyed	Not Surveyed
2003	Not Surveyed	Not Surveyed
2004	Not Surveyed	Not Surveyed

Evaluation: The monitoring program for sand skink has shown presence of the species in a variety of scrub habitats, but there does not seem to be any conclusive correlation of sand skink population trends and management practices. The utility of this species as a management indicator needs to be reviewed.

5-Year Trends: Data is inclusive to identify a trend.

Largemouth Bass (*Micropterus salmoides)*

Results: The majority of largemouth bass habitats of these National Forests are natural lakes, most of which are seepage lakes formed by solution depressions. Since these lakes have no significant surface inflow or discharge, water quality is influenced by precipitation and soil

characteristics of the immediate watershed. The majority of these lakes are therefore very acid, poorly buffered, and low in nutrient concentrations and productivity. Excavated ponds, most of which were created to provide fill for highways, are managed for sport fishing on the Osceola and Apalachicola National Forests. If left unmanaged, these ponds would be acid, poorly buffered, and low in nutrient concentrations and productivity.

A largemouth bass monitoring program has been established on both types of water bodies to determine population trends and management effectiveness. These monitoring activities were designed to compare current conditions with a variety of available data. Lakes and ponds of the National Forests in Florida have been sampled with electrofishing equipment since the early 1980's. Data collected from these samples are summarized in tables containing information on relative abundance and occurrence of largemouth bass size-classes. This sampling is conducted every five years, therefore the data reported this year is the same as reported in the 2001 monitoring report.

Life history and population parameters most often utilized are spawning success and recruitment, measured as Young-of-Year (YOY) occurrence, and relative abundance of largemouth bass.

Tables 18 - 20 show the monitoring results in 9 excavated ponds on the Apalachicola National Forest, 14 excavated ponds on the Osceola National Forest, and 38 natural lakes on the Ocala National Forest.

Table 18.
Monitoring Results
Apalachicola National Forest Managed Excavated Ponds

Year	Number of samples	Samples with Largemouth bass	Samples with YOY Largemouth bass	Total Number Largemouth bass	Number Harvestable Largemouth bass	Relative Abundance Largemouth bass
1986-90	13	11	6	241	104	0.033
1991-95	35	35	15	899	450	0.102
1996-00	28	28	4	640	321	0.294

Table 19.
Osceola National Forest Managed Excavated Ponds

Year	Number of Samples	Samples with Largemouth bass	Samples with YOY Largemouth bass	Total Number Largemouth bass	Number Harvestable Largemouth bass	Relative Abundance Largemouth bass
1981-85	17	16	11	406	109	0.195
1986-90	14	12	7	185	58	0.099
1991-95	27	23	18	296	97	0.133
1996-00	40	34	21	352	203	0.138

Table 20.
Ocala National Forest Natural Lakes

Year	Number of samples	Samples with Largemouth Bass	Samples with YOY Largemouth Bass	Total Number Largemouth Bass	Number Harvestable Largemouth Bass	Relative Abundance Largemouth Bass
1981-85	41	38	14	1120	447	0.192
1986-90	21	19	10	982	382	0.108
1991-95	27	25	12	835	272	0.120
1996-00	25	21	4	271	157	0.111

Evaluation: Trends indicated by these data suggest an acceptable level of harvestable and YOY largemouth bass occurrence and an increase in relative abundance in managed excavated ponds on the Apalachicola National Forest. There are no indications of significant adverse changes in the largemouth bass population characteristics of these ponds during the sample period.

On the Osceola National Forest, the number of samples without largemouth bass is the area of greatest concern. Two of these lakes have not supported a largemouth bass population during the course of this study. These two lakes, North Deerhole and Warmouth have been fertilized, but have not been treated with lime. One of the ponds, North Deerhole, is often the most acid lake sampled on the Osceola National Forest, commonly with a pH measurement of 3.9.

Again, on the Ocala National Forest, the number of samples without largemouth bass is the area of greatest concern. Largemouth bass populations have never been observed in two of these lakes, Gobbler and Lawbreaker. The two lakes are often the most acid lakes sampled on

the Ocala National Forest. Both have recorded pH measurement of 3.9. During fall 2003, 4 more lakes were sampled and found to have no YOY largemouth bass. High water levels in 2004 have increased the probability of largemouth bass spawning. These data will be included in the updated data tables presented in 2006.

High acidity is thought to have always been a characteristic of these water bodies, and the largemouth bass has of necessity adapted to these conditions. These lakes are among the most acidic in the United States, and although it has generally been accepted that fisheries are severely impacted below pH 5.0 and are nearly destroyed below pH 4.8, there has never been a documented fisheries loss to a Florida acidic lake. Fish populations of these acid lakes may be more tolerant to acid conditions than the northern fish communities.

Trends observed in these data and concerns for future impacts of acidic precipitation must therefore be given serious consideration. Guidelines in the Forest Plan may not offer an opportunity to engage in proactive management necessary to protect the viability of largemouth bass in the natural lakes of these forests.

5-Year Trends: Trends indicated by these data suggest an acceptable level of harvestable and YOY largemouth bass occurrence and an increase in relative abundance in managed excavated ponds on the Apalachicola National Forest. On the Osceola and Ocala National Forests, the number of samples without largemouth bass is of concern. Some of the lakes sampled on these two forests have low pH's (~3.9) and no largemouth bass. However, there is no strong data to suggest population trends.

Forest Plan Objective:

- Provide the following habitat conditions in the next 10 years:

1.2 Monitoring Question: What are the habitat conditions of the major habitat associations?

Item to Measure: Acres of each habitat association by major forest type age class

Results: The Monitoring Plan for LMP requires this item to be reported at five-year intervals.

Table 21.
Habitat Association Objectives

Habitat Association	Apalachicola NF	Osceola NF	Ocala NF
Sandhill and Scrubby Flatwoods			
0-10 age class	8,152	0	2,947
11-30 age class	7,820	0	9,090
31-80 age class	7,034	0	8,786
81+ age class	7,059	0	25,485
Mesic Flatwoods and Wet Flatwoods			
0-10 age class	1,500	1,000	78
11-30 age class	60,413	27,598	10,537
31-80 age class	158,813	76,541	22,975
81+ age class	63,630	15,346	4,557
Xeric Hammock, Upland Hardwood			

Habitat Association	Apalachicola NF	Osceola NF	Ocala NF
Forest, and Slope Forest			
0-20 age class	400	0	834
21-60 age class	1,717	53	5,449
61-100 age class	4,231	158	4,251
101+ age class	542	0	530
Scrub			
0-10 age class	0	0	40,000
11-30 age class	0	0	91,919
31-50 age class	0	0	53,435
51+ age class	0	0	20,789
Bottomland Forest, Floodplain Swamp, Hydric Hammock, Baygall, Basin Swamp, Strand Forest, and Dome Swamp			
0-20 age class	1,145	380	326
21-60 age class	1,995	1,280	1,642
61-100 age class	88,541	43,835	27,886
101+ age class	7,454	207	1,580
Bog, Seepage Slope, Depression Marsh, Wet Prairie/Savannahs	6,043	980	101
Titi/Brush	133,573	10,005	0
Aquatic (Lakes, Rivers, Streams, Ponds)	4,936	2,129	18,263

Results: For ease of comparison, the percent age class objectives are listed in comparison to the 2004 percent age class distributions. The acres of Bogs, Seepage Slopes, Depression Marshes, Wet Prairie/Savannahs,Titi/Brush and Aquatic (Lakes, Rivers, Streams, Ponds) habitats remained the same in our database. However, some of these areas have actually increased due to land acquisition, but these areas have not been inventoried for exact acres.

Table 21a. Age class comparisons

Habitat Association	Apalachicola NF		Osceola NF		Ocala NF	
Sandhill and Scrubby Flatwoods	**10-year objective percent age class**	**2004 percent age class**	**10-year objective percent age class**	**2004 percent age class**	**10-year objective percent age class**	**2004 percent age class**
0-10 age class	27%	6%	0	0	6%	8%
11-30 age class	26%	26%	0	0	20%	19%
31-80 age class	23%	47%	0	0	19%	30%
81+ age class	24%	21%	0	0	55%	43%
Mesic Flatwoods and Wet Flatwoods						
0-10 age class	1%	1%	1%	2%	0.2%	3%
11-30 age class	21%	24%	23%	24%	28%	21%
31-80 age class	56%	57%	64%	62%	60%	63%

81+ age class	23%	18%	12%	12%	12%	13%
Xeric Hammock, Upland Hardwood Forest, and Slope Forest						
0-20 age class	6%	2%	0	0	8%	25%
21-60 age class	25%	32%	25%	60%	49%	35%
61-100 age class	61%	62%	75%	40%	38%	37%
101+ age class	8%	4%	0	0	5%	3%
Scrub						
0-10 age class	0	0	0	0	19%	16%
11-30 age class	0	0	0	0	45%	47%
31-50 age class	0	0	0	0	26%	23%
51+ age class	0	0	0	0	10%	14%
Bottomland Forest, Floodplain Swamp, Hydric Hammock, Baygall, Basin Swamp, Strand Forest, and Dome Swamp						
0-20 age class	1%	0.4%	0.4%	0.02%	0.8%	0.1%
21-60 age class	2%	3%	3%	5%	5%	5%
61-100 age class	89%	90%	96%	94%	89%	90%
101+ age class	8%	7%	0.6%	0.98%	5%	5%

Evaluation: The habitat association objectives were arrived at based on the stand conditions at the time of plan implementation and the planned acres of regeneration that would place different portions in the habitat associations in the 0-10 year age class, what age class that regeneration would come from, and the natural aging of the forest. For example, the objective for the sandhills and scrubby flatwoods habitat association is a result of the objective of restoring 10,000 – 15,000 acres off-site slash and sand pine to longleaf pine. Most of the off-site slash pine is 25-30 years old so that is the age class that will be reduced. The mesic and wet flatwoods objective are the results of the acres in regeneration at the time of plan implementation and the objective to initiate irregular shelterwood harvests between 1,800 and 2,000 acres of slash pine forests. There is no planned regeneration harvests in any of the hardwood forest types, however in the xeric upland hardwoods on the Ocala NF, early scrub habitat is being created through the use of prescribed fire and mechanical means. The sand pine scrub habitat association objectives are a reflection of the objective to regenerate between 39,000 and 41,000 acres of sand pine.

Regeneration success is monitored and reported annually in the Plantation Evaluation and Performance Reports (FSM 2496.5) the first and third year after planting, seeding or naturally regenerating. If the stocking levels are not acceptable, the area is scheduled for additional regeneration treatments. At this time there is no indication that regeneration has been a problem on the forest and harvested stands have been or are capable of being re-stocked within five years. In addition, all harvests have occurred on lands suitable for timber production or on unsuitabla lands where such actions are appropriate as established in the Forest Plan.

5-Year Trends: The primary trend in these habitat associations is that most of the acres current in the 0-10 year age classes are 5-10 years old. Since the regeneration acres of off-site slash pine and sand pine scrub is behind schedule, the 0-10 age class objectives may not be attained.

Forest Plan Objective:

- Provide habitat capability to support an increasing population of red-cockaded woodpeckers (RCWs). The 10-year population objectives are 500 active clusters on the Apalachicola habitat management area (HMA), 250 active clusters on the Wakulla HMA, 151 active clusters on the Osceola HMA, 32 active clusters on the Island HMA, and 12 active clusters on the Paisley HMA. The long-term objectives are 500 active clusters on the Apalachicola HMA, 506 active clusters on the Wakulla HMA, 457 active clusters on the Osceola HMA, 67 active clusters on the Island HMA, and 81 active clusters on the Paisley HMA. The objective for the designated recovery populations (Apalachicola Ranger District and Osceola NF) is to have at least 250 breeding pairs fledging young annually. In unrecovered populations, recruitment clusters should equal approximately 10 percent of active clusters, depending on population demographics.

1.3 Monitoring Question: Are we maintaining RCW populations on the National Forests in Florida?

Item to Measure: Number of effective groups; number of active clusters, compartment group survey

Results: All three forests are continuing their long-standing monitoring of red-cockaded woodpeckers.

Since 1994, the Osceola RCW population has increased from 45 clusters through a combination of artificial cavity installation, internal translocation, and prescribed burning. In 1999, the forest entered into a challenge cost share project with Tall Timbers Research Station to update its RCW geographic information system (GIS) layer. Every known active and inactive cavity tree was precisely located with geographic positioning system (GPS) equipment. During 2000, eggs were laid at 57 clusters and 103 nestlings were banded. One male and two female fledglings were translocated within the population to help increase the number of active clusters. Twenty-eight new artificial cavities were installed to establish 7 new recruitment clusters. Due to wildlife staff vacancies, complete monitoring of RCW cavity trees and cluster status was not accomplished between 2000 and 2002. In 2003, the Osceola accomplished a complete tree status check of all known RCW clusters and re-GPS'ed all known active and inactive cavity trees. This intensified monitoring of the RCW population continued through 2004, and the District currently reports 84 active clusters.

The Apalachicola National Forest contains two populations, the Wakulla and Apalachicola. The latter is the only recovered population at 473 known active clusters. The Apalachicola population annually provides fledglings for translocation to other populations in Florida, Georgia, Mississippi, and Alabama to help enhance their recovery. In 2003, 206 nestlings were banded and 20 fledglings were translocated to 5 populations. In 2004, 338 nestlings

were banded and 42 fledglings were translocated to 9 populations. This increase in translocation effort was made possible by the addition to the District staff of a US Fish and Wildlife Service biological technician. The Apalachicola population has remained relatively stable since the early 1990s.

The Wakulla population contains 137 known active clusters. This represents a decline of approximately 9% from the 150 active clusters known in 1995 and 26% from the 186 known in 1991. The reason for the decline is still unknown, although field biologists feel that it is likely due to a lack of regularly recurring prescribed fire, and may be compounded by the lagging timber management program. In the early spring of 2004, the Forest worked with the USFWS RCW Recovery Coordinator to develop a more detailed Plan of Work that we hope will give us a better indication of what may be causing the decline. This population is not providing fledglings for the translocation effort.

The Ocala population is the smallest of the four populations on the National Forests in Florida. In 1996 they were down to 10 active clusters. By 2001 there were 30 active clusters. Nine clusters had single birds for at least part of the year, and 17 of 21 (81%) potential breeding pairs nested. A record high of 31 fledglings was produced, of which 13 were banded as nestlings. In 2002, the Forest recorded 29 active clusters with a total of 97 active cavity trees, with an increase to 37 active clusters in 2003. In 2004, the Forest reports a further increase to 44 active clusters. This population has benefited significantly from translocations from the Apalachicola. Prescribed burning to improve habitat and artificial cavity installation and translocation are all being used to enhance this population. Table 19 shows the trends in active clusters of the four RCW populations on the National Forests in Florida.

Table 22.
Red-cockaded Woodpeckers – National Forests in Florida
Active Clusters

Year	Apalachicola RD	Wakulla RD	Osceola NF	Ocala NF
1991	503	186	44	12
1992	503	182	43	11
1993	494	150	43	13
1994	500	Incomplete	45	10
1995	504	150	51	15
1996	504	154	53	10
1997	505	157	51	10
1998	505	125	Incomplete	13
1999	486	125	66	18
2000	486	138	Incomplete	22
2001	488	140	Incomplete	30
2002	486	140	Incomplete	29
2003	485	134	77	37
2004	473	137	84	44

Evaluation: By 2009, the goal by HMA is 500 for Apalachicola, 250 for Wakulla, 151 for Osceola, 32 for Island (LG), and 12 for Paisley (Seminole).

The Apalachicola population is relatively stable, the Wakulla shows a decline, and the Osceola and Ocala populations are increasing. The steady increase since 1997 on the Ocala is partially due to translocations of young birds from the Apalachicola RD, but largely due to the active habitat improvement program in RCW habitat areas. The number of active clusters on the Ocala has tripled in last five years, but non-paired birds occupy 30% of those clusters.

With the continued emphasis on prescribed burning, aggressive application of artificial nest structures, and our successful translocation program, the viability of the red-cockaded woodpecker is ensured on the National Forests in Florida.

5-Year Trends: Populations on the Ocala and Osceola NF are increasing. The Apalachicola population is stable, but the Wakulla is decreasing.

Forest Plan Standards and Guidelines WL-1 through WL-3 on page 3-27 of the Forest Plan provide for an exception on the Apalachicola RD to the foraging requirements found in the RCW EIS.

1.4 Monitoring Question: What are the effects of the reduced foraging standards on the Apalachicola National Forest?

Items to Measure: Cluster activity status, group size, nesting success, chicks reaching banding age, and number fledged per active group

Results: It is too early in the Forest Plan implementation process to fully assess the effects of the reduced foraging standards, or to draw any firm conclusions. Table 23 presents some of the demographic trend information that will help us determine the effects of the reduced foraging standards. Additional studies have been placed in areas where the reduced standards have been applied.

Table 23.
RCW population demographics, Apalachicola RD

Year	Potential Breeding Groups	Average Group Size	Nesting Success (Total Attempted/ Total Successful)	Chicks to Banding Age	Fledglings Per Group
1999	480	2.40	200/166	394	1.8
2000	486	2.57	155/112	321	2.3
2001	483	2.55	107/80	218	1.8
2002	480	ND	112/ND	234	ND
2003	480	2.46	109/72	206	2.1
2004	473	2.36	174/131	338	1.62

Evaluation: Cluster activity status is presented in Table 22 above. There has been a slight decline in active clusters; about a 6% decline over 14 years with some up/down oscillation during that period. This decline is probably not currently a concern but must be watched closely. Average group size is an important measure of population health and resilience.

Declining group size is an important early indicator of population decline (USFWS 2003). Group size in the Apalachicola population has been formally monitored since 1999 and has remained nearly constant. Nesting success is also a critical metric of population health. Birds can lay all the eggs they are capable of, but if they don't incubate them, or if predators get them all, the population won't grow. Nest success in this population has fluctuated considerably since 1999, but for 2004 it was very good. Chicks are typically banded at about 9 days of age, so this measure (Chicks to Banding Age) helps understand how many birds survived the critical first week of life. Fledglings Per Group tells us how many birds survive to take their first flight. Survival to this important milestone, even though it is not an end to the potential hazards for these birds, is another critical measure of population success. Fledglings per group has varied only slightly since we began measuring and reporting it in 1999. This monitoring question has been proposed for removal from the 1999 Revised LRMP based on the updated information in the 2003 RCW Revised Recovery Plan.

5-Year Trends: There has been a slight decrease but no clear trend.

Forest Plan Objective:

- Maintain a dynamic system of at least 45,000 to 55,000 acres of habitat capable of supporting scrub jays on the Ocala NF. The 10-year population objective is 742 to 907 groups.

1.5 Monitoring Questions: What are the population trends of scrub jay? How is management affecting scrub jay? How many acres are suitable for scrub jay?

Items to Measure: Scrub jay population demographics, reproduction, dispersion, number of acres in 3-15 year age class in sand pine.

Results: The scrub jay is federally listed as threatened. It is found only in peninsular Florida, nesting in oak or pine scrub habitat. The Ocala is the only National Forest with this habitat type. The jay was selected as an indicator of healthy scrub, since this species nests only in early seral stage scrub. It is quite selective, being limited to thick scrub in sandy areas.

Because prescribed fire is so difficult to control in scrub habitats, and because of smoke management issues, timber harvest is the primary management tool for maintaining scrub jay habitat on the Ocala National Forest. Clear-cutting of mature sand pine regenerates the scrub habitat necessary for the jay. The resulting scrub is generally suitable for nesting for 10 - 12 years. After this time the scrub is overtopped by young sand pine, rendering the site unsuitable for the jays. A regular cycle of sand pine regeneration is being employed to maintain the jays across the scrub on the Ocala National Forest. At the end of FY 2000, there were 62,627 acres (29%) of sand pine scrub in the 3-15 year old age class. The latest data we have available (Spring, 2005) indicates that we currently have 51,391 acres (24%) of 3-15 year old sand pine scrub on the Ocala.

Forest wide monitoring for numbers of clans (family groups) and individual birds has been done since 1994. The Ocala National Forest surveys approximately 25% of suitable habitat per year by playing a scrub jay call tape and recording number of birds sighted per site. An experienced observer interprets the number of groups based on the birds' behavior. New

records are added to the Active List and formerly recorded sites are moved to historical status based on survey results. Results are shown in Table 24. Demographic monitoring overseen by Dr. Kay Franzreb of the Forest Service's Southern Research Station began in November 2000 and continues to the present time.

Table 24.
Ocala National Forest Scrub Jays
Groups/birds

Year	Lake George RD	Seminole RD
1994	454/no count	245/no count
1995	460/1313	247/694
1996	466/1398	249/693
1997	468/1336	259/774
1998	473/893	272/799
1999	333/893	413/1050
2000	351/1020	412/1048
2001	384/1120	401/969
2002	421/1258	394/955
2003	425/1251	355/881
2004	426/1253	354/868

Evaluation: The number of groups increased 13% from 1994-2001. In 2002, the total number of groups increased 4% over 2001 and the total number of birds increased by 6%. For 2003, the number of groups decreased from 815 to 780, and total birds decreased from 2213 to 2132. In 2004 the number of groups stayed the same, but there were slightly fewer (2121) birds counted. Both are decreases of 4%, and this is the first overall decrease since we have been maintaining monitoring records on scrub jays. The 10-year population objective in the Forest plan is to maintain a population between 742 to 907 groups. This objective is being met.

The viability of this species on the Ocala National Forest appears to be insured through the application of sand pine regeneration, thereby creating early seral stage scrub habitat necessary for breeding. The acres of sand pine scrub in the 3-15 year old age class is within the objective; however, there is concern about potential conflicts between the Forest Plan standard (VG-24) of maintaining 5% of suitable sand pine acres in age class 55-80 and the objective (Objective #9) to maintain 45,000 to 55,000 acres in scrub jay habitat. This concern will hopefully be alleviated by a currently proposed LMP amendment which proposes to eliminate VG-24.

An in-depth analysis of scrub-jay habitat management was conducted on the Seminole Ranger District. Several scenarios were modeled using varying timber harvest rates and including scrub jay habitat in management areas unsuitable for commercial timber production. Given the 5% standard, scrub jay habitat on the Seminole Ranger District levels off at about 19,000 acres. Since the Seminole represents about 43% of the total scrub acres on the Ocala,

the District would be expected to provide 43% of the suitable habitat objective, or 19,350 acres. This scenario is based on the assumption that burning and other disturbances occur as planned in the areas unsuitable for timber production.

The hurricanes of 2004 impacted sand pine habitats by damaging 3,257 acres of mature (70+ years old) sand pine in 71 discrete stands. Only small portions of these stands were damaged to the extent that they could now be considered as early seral habitat, but many of the trees are damaged and timber salvage is currently being conducted. Most of these stands will become important as scrub-jay habitat only after the timber has been salvaged, site preparation has been accomplished, and 3 to 4 years have passed. At this time, we can expect a "spike" in the scrub-jay population.

5-Year Trends: The 10-year population objective for scrub jays is being met on the Ocala NF. Although monitoring indicates the first overall decrease since monitoring records have been kept, there is an overall increase since 2000.

Forest Plan Standards and Guidelines for PETS animals are found on pages 3-26 through 3-30 of the Forest Plan and includes standards and guidelines **WL-1** through **WL-19.**

Forest Plan Standards and Guidelines for PETS plants are found on pages 3-17 through 3-18 of the Forest Plan and includes standards and guidelines **VG-1** through **VG-3.**

1.6 Monitoring Questions: Are we maintaining viable populations of PETS animal species and habitats to support them?

Item to Measure: Number of PETS animals or acres of suitable habitat

Results and Evaluation

Birds

Endangered
***Mycteria americana*/Wood Stork**
***Picoides borealis*/Red-cockaded Woodpecker**

Threatened
***Aphelocoma coerulescens*/Florida Scrub-Jay**
***Haliaeetus leucocephalus*/Bald Eagle**

Sensitive
***Aimophila aestivalis*/Bachman's Sparrow**
***Grus canadensis pratensis*/Florida Sandhill Crane**

Florida Scrub-jay, **Bald Eagle** and **Red-cockaded Woodpecker** are discussed previously in this report as Management Indicator Species.

Wood Storks are found predominantly in Florida. They nest north to the Okefenokee Swamp in Georgia and on rare occasions in coastal South Carolina. During the non-breeding warmer months, they are fairly common over much of Florida. Primary nesting habitats are swamps, tall trees along lakeshores or thickets of trees or large shrubs, mainly near fresh water.

A wood stork rookery has been documented in the SW portion the Osceola NF, south of I-10. The extended drought since 1998, however, has confounded efforts to determine trends for the species on the forest. On 4/15/04, it was found that this rookery had recently been reactivated, with 25 birds in residence. This is brand-new information, and we do not yet have any data on nests. Nesting has yet to be documented on either the Ocala or Apalachicola NFs.

Evaluation: Habitat for this species is being provided, and because it primarily uses wetland areas, the habitat receives adequate protection from the Standards and Guidelines of the Forest Plan. Any populations using the National Forests will be secure for as long as they choose to stay.

5-Year Trends: Data is inconclusive to show a trend.

Bachman's Sparrow populations have declined range wide in recent decades. It favors open pine stands with grasses and scattered shrubs, oaks, or other hardwoods. Maintenance of old growth longleaf with 20-25 foot spacing between trees, and thinning benefits this species as well as the red-cockaded woodpecker. Nesting requirements include dense herbaceous cover interspersed with, or bordered by, shrubs and trees. Forested areas burned between the months of April and August will benefit this bird by stimulating an increase in herbaceous vegetation.

Data from the various BBS routes on the Apalachicola NF; the Ft. Gadsden BBS route, in the southwest corner, the Bloxham route in the north-central portion of the Forest, the Apalachicola route through the central and western portions of the Forest, and the Alligator Point route in the southeastern corner of the Forest all suggest slightly different trend information. Combining of the data (Figure 11.) shows that while the number of birds seen annually is quite variable, the trend over the last ten years has been a slight decline.

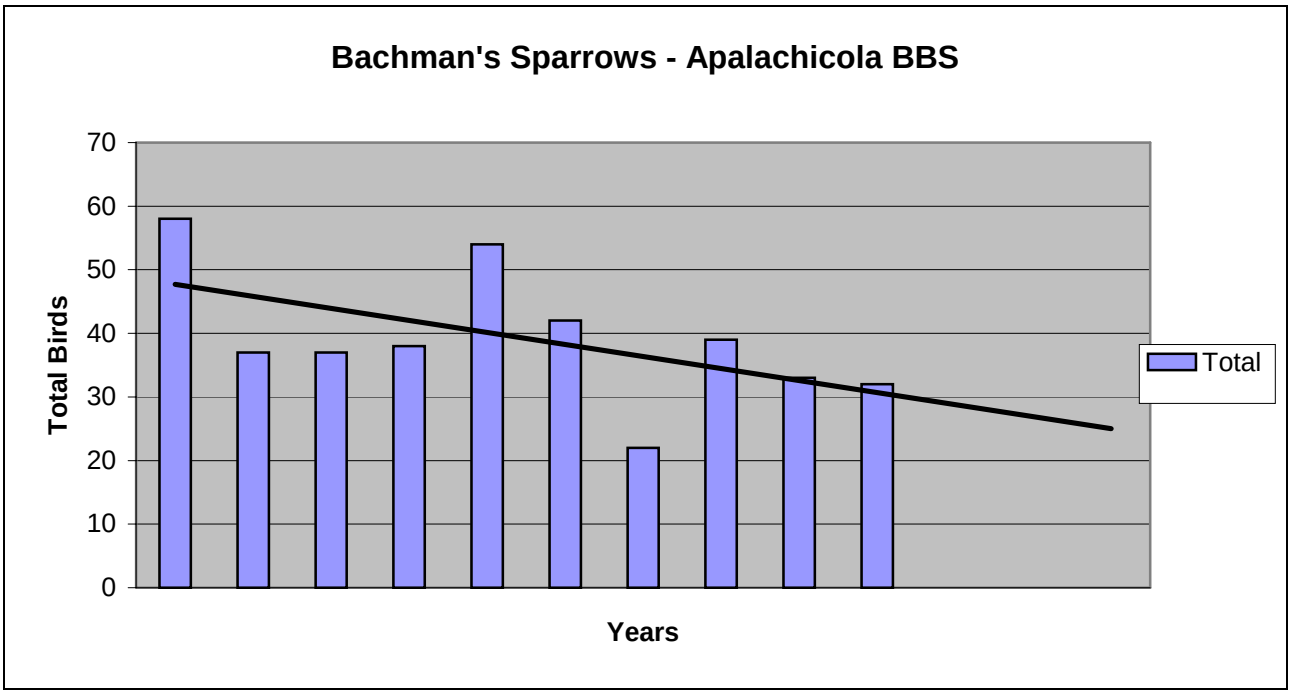


Figure 11. BBS Route summary, 1995 - 2004 for Bachman's Sparrow - Apalachicola NF.

The Apalachicola's data at the R8 Bird sampling points shows the following for Bachman's sparrow:

Table 25.
Apalachicola NF
Bachman's Sparrow – R8 Bird Points

Year	Total Birds	Points Sampled	Birds/Point
2000	21	30	0.7
2001	43	30	1.43
2002	37	60	0.62
2003	62	60	1.03
2004	32	60	0.53

The Osceola BBS route data suggests that this species is found in low numbers with an increasing trend along the northern portion of the forest. R8Bird point data collected in 2002 and beyond will provide information to supplement the BBS data and provide a better indication of the actual status of the Bachman's sparrow on the Osceola National Forest.

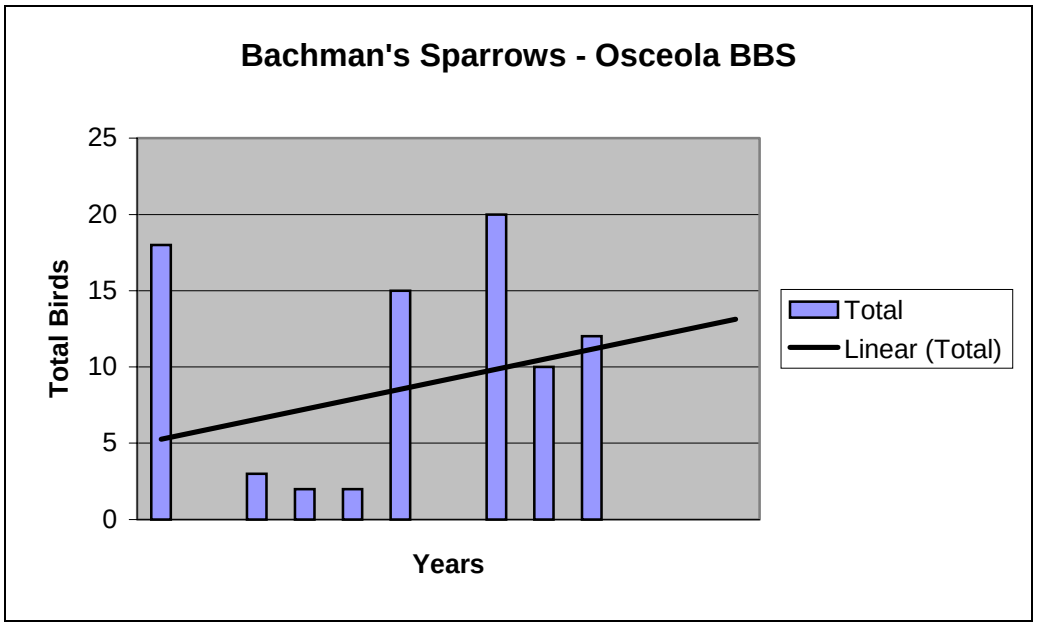


Figure 12. BBS Route summary, 1995 - 2004 for Bachman's Sparrow - Osceola NF.

Table 26.
Osceola NF
Bachman's Sparrow – R8 Bird Points

Year	Total Birds	Points Sampled	Birds/Point
2002	5	30	0.17
2003	5	30	0.17
2004	11	35	0.31

The Ocala BBS data are not applicable as an index for Bachman's sparrow because suitable habitat is not well represented on this route. R8Bird point data show Bachman's sparrow to be the second most common species in the Ocala National Forest's longleaf pine sandhills habitat. An average of 1.6 Bachman's sparrows per point have been counted from the 80 points monitored on the Ocala over the last 8 years (1997-2004). Assuming 2 acres per point, the population index averages 80 birds per 100 acres of suitable habitat.

Table 27.
Bachman's Sparrow at R8Bird Longleaf Points - Ocala National Forest
Birds Per Point

Year	Lake George RD Riverside Island	Seminole RD Paisley Woods
1997	.85	1.5
1998	1.65	1.6
1999	2.15	2.45
2000	2.55	1.45
2001	2.9	1.1
2002	2.9	0.93
2003	1.5	0.7
2004	0.8	0.38

Evaluation: Bachman's sparrow populations are secure on all three National Forests in Florida. As the prescribed burning regime continues to improve habitat, Bachman's sparrow populations can be expected to improve.

5-Year Trends: The number of birds seen annually is variable, but a decline is evident over the last 5 years.

Florida Sandhill Crane

Primary breeding habitat for **Florida Sandhill Crane** is found in prairies with marsh areas and small ponds as well as open pine savannas with small pools or ponds. Wintering habitat is similar, but they can also be found in drier areas. They can be seen in cattle pastures and along the margins of fresh water. The crane is found throughout peninsular Florida in low densities during both breeding and wintering seasons.

The BBS routes on the NFs in Florida have not been detecting this species. Potentially suitable habitat is found in the prairies on the Ocala NF and (although they are outside the range) the savannas on the western portion of the Apalachicola NF. The Ocala R8 Bird points near Lake Delancy in central Riverside Island record the Florida sandhill crane every year. The extended drought has affected potential breeding habitats on National Forest lands.

Table 28.
Sandhill Crane at R8Bird Points - Ocala National Forest
Birds Counted

Year	Lake George RD Riverside Island
1997	2
1998	3
1999	6
2000	6
2001	7
2002	2
2003	2
2004	2

Evaluation: There is probably more habitat in peninsular Florida available to this species than there are birds to utilize it. The fact that they are not seen on the forest in significant numbers may be partially tradition of the birds, and partially because adequate preferred habitat is available elsewhere.

5-Year Trends: Populations are not high enough to detect a trend for this species.

Fish

Threatened
***Acipenser oxyrinchus desotoi*/Gulf Sturgeon**

Sensitive
***Acipenser oxyrhinchus oxyrhinchus*/Atlantic Sturgeon (added to list effective 01/01/2002)**
***Alosa alabamae*/Alabama Shad (added to list effective 01/01/2002)**
***Ameiurus serracanthus*/Spotted bullhead (added to list effective 01/01/2002)**
***Cyprinella leedsi*/Bannerfin Shiner (dropped from list effective 01/01/2002)**
***Micropterus notius*/Suwannee Bass**

Combined Evaluations:
The **Gulf Sturgeon** is an anadromous fish which breeds in all the major rivers that empty into the eastern Gulf of Mexico. It is listed as a threatened species because of documented declines in population size in all rivers except the Suwannee River. It is likely that habitat degradation and loss of spawning areas are a major cause of the declines in gulf sturgeon populations. Dams on both the Apalachicola and Ochlockonee river systems prevent sturgeon from reaching historical spawning sites.

Forest Service ownership along the Apalachicola River is limited to approximately 7 miles of the east bank. This amounts to only about 2.9% of the 103 miles of the Apalachicola in the

State of Florida. A 1999 survey of the river by USFWS found 321 gulf sturgeon in river reaches just below Jim Woodruff dam; well to the north of National Forest ownership, and no sturgeon as far south on the river as the National Forest ownership. Forest Service ownership on the Ochlockonee River is greater, and amounts to approximately 6 miles on both sides of the river and 25 miles on one side of the river. According to the USFWS, gulf sturgeon is only known from the Ochlockonee from Mack Landing south (to Ochlockonee Bay). That represents about 8 miles of one side Forest Service ownership and about ¼ mile of ownership on both sides. In a recent census (May 2004) they found 115 fish in this stretch of the river. Early in 2003, the US Fish and Wildlife Service designated these rivers, as well as river systems in Louisiana, Alabama, and Mississippi as critical habitat. Due to the Forest Service's relatively minor ownership of the banks and the application of Forest Plan Standards & Guides (VG-8, WA-1 through WA-7), Forest Service management activities are not expected to have any effect on this species. Monitoring and trend information on this subspecies will be obtained periodically from the Florida Fish and Wildlife Conservation Commission and the US Fish and Wildlife Service.

The **Atlantic Sturgeon** lives in the Atlantic Ocean from Florida to Labrador, Canada. The Atlantic sturgeon makes long migrations, moving south to Florida in the winter. It has been collected from the St. Johns River in Putnam County. It "may have bred in the St. Johns River drainage at one time, although this has never been proved. In any event, reproduction almost certainly does not occur there today" *(Gilbert, C. R. (ed.) 1992. Fishes. Volume II in Ashton, R. (series ed.) Rare and Endangered Biota of Florida. University Presses of Florida. Gainesville, FL 247pp.).*

The Ocala National Forest has ownership of about a quarter of the length of the western bank of the St. Johns River (including Lake George). Due to limited management activities in the zone of influence for the St. Johns River, and the application of Forest Plan Standards & Guides VG-8, WA-1 through WA-7, Forest Service management activities are not expected to have any effect on this species. Any monitoring and trend information available on this subspecies will be obtained from the Florida Fish and Wildlife Conservation Commission and the US Fish and Wildlife Service. This subspecies is a candidate for federal listing.

The **Alabama Shad** occurs in the Gulf of Mexico and enters drainages from the Suwannee River to the Mississippi River for spawning. Due to limited management activities in the zone of influence for the Apalachicola, Suwannee, and Ochlockonee Rivers, and the application of Forest Plan Standards & Guides VG-8, WA-1 through WA-7, Forest Service management activities are not expected to have any effect on this species. Any monitoring and trend information available on this species will be obtained from the Florida Fish and Wildlife Conservation Commission and the US Fish and Wildlife Service. The species is a candidate for federal listing. It was added to the revised Southern Regional Foresters Sensitive Species List effective January 1, 2002.

The **Spotted Bullhead** occurs in the lower drainages of the Apalachicola, Ochlockonee, and Suwannee River systems. In 1978 this species was listed as Rare by the Florida Committee on Rare and Endangered Plants and Animals, a committee of the Florida Academy of Sciences. In 1992 it was eliminated *(Gilbert, C. R. (ed.) 1992. Fishes. Volume II in Ashton,*

R. (series ed.) Rare and Endangered Biota of Florida. University Presses of Florida. Gainesville, FL 247pp.). Others were not in agreement with this assessment, because ten years later, the species is a candidate for federal listing. It was added to the revised Southern Regional Foresters Sensitive Species List effective January 1, 2002. Due to limited management activities in the zone of influence for the Apalachicola, Suwannee, and Ochlockonee Rivers, and the application of Forest Plan Standards & Guides VG-8, WA-1 through WA-7, Forest Service management activities are not expected to have any effect on this species. Any monitoring and trend information available on this species will be obtained from the Florida Fish and Wildlife Conservation Commission and the US Fish and Wildlife Service.

The **Bannerfin Shiner** was dropped from the revised Southern Regional Foresters Sensitive Species List effective January 1, 2002.

The **Suwannee Bass** is restricted to the Suwannee and Ochlockonee Rivers systems of Florida and Georgia. It generally prefers more rapidly flowing water along rocky shoal areas, but is not restricted to these areas. It can be found in large springs and spring runs as evidenced by its presence in the spring fed lower reaches of the Santa Fe and Ichetucknee rivers, which are tributary to the Suwannee.

Reproduction, including nest construction, is similar to largemouth bass. Degradation of water quality or habitat in the Suwannee and Ochlockonee rivers could threaten this species. As with mussels, watershed impacts related to agriculture, urbanization, and water management outside National Forest lands will have the definitive impacts on this species.

5-Year Trend: No data is available to indicate a trend for these species.

Reptiles

Threatened
***Alligator mississippiensis*/American Alligator**
***Drymarchon corais couperi*/Eastern Indigo Snake**
***Neoseps reynoldsi*/Sand Skink**

Sensitive
***Gopherus polyphemus*/Gopher Tortoise**
***Graptemys barbouri*/Barbour's Map Turtle (dropped from list effective 01/01/2002)**
***Lampropeltis getulus goini*/Apalachicola King Snake**
***Pituophis melanoleucus mugitus*/Florida Pine Snake**
***Pseudemys concinna suwanniensis*/Suwannee Cooter Turtle**
***Sceloporus woodi*/Florida Scrub Lizard**
***Stilosoma extenuatum*/Short-tailed Snake**

American alligators can be found in ditches, lakes, marshes, ponds, rivers, streams, and even brackish water. American alligators can occur in any wetland habitat. American alligator habitat exists on the Apalachicola, Ocala, and Osceola NFs. Breeding has been confirmed on the forests.

Historically, alligators were depleted from many parts of their range because of market hunting and loss of habitat, and 30 years ago many people believed this unique reptile would never recover. In 1967, the alligator was listed as an endangered species (under a law that preceded the Endangered Species Act of 1973), meaning it was considered in danger of extinction throughout all or a significant portion of its range. A combined effort by the U.S. Fish and Wildlife Service and state wildlife agencies in the South saved these unique animals. The Endangered Species Act prohibited alligator hunting, allowing the species to rebound in numbers in many areas where it had been depleted. As the alligator began to make a comeback, states established alligator population monitoring programs and used this information to ensure alligator numbers continued to increase. In 1987, the U.S. Fish and Wildlife Service pronounced the American alligator fully recovered and consequently removed it from the list of endangered species. Although the American alligator is secure, some related animals, such as several species of crocodiles and caimans are still in trouble. For this reason, the U.S. Fish and Wildlife Service has listed American alligators as "Threatened because of similarity of appearance", and still regulates the legal trade in alligator skins, or products made from them, in order to protect endangered species that have skin similar in appearance to alligators. The FWC permits alligator harvest in selected areas around the state, and the Ocala Wildlife Management Area (WMA) is the only area currently permitted on the National Forests in Florida. Additional information about alligator harvest is available from FWC at their website: http://wildflorida.org/gators/Default.htm.

Table 29.
Alligator harvest, Ocala WMA

Year	Harvest Quota	Harvest
1997	5	4
1998	5	1
1999	5	3
2000	4	4
2001	ND	2
2002	ND	3
2003	ND	3
2004	4	2

Evaluation: The American alligator is secure on the National Forests in Florida. The Forests provide excellent habitat in a number of places for alligators. They are managed as a harvestable species by the FWC, who defines harvest areas, harvest quotas and hunting dates.

5-Year Trends: There is no clear trend, but the population appears relatively stable.

Eastern Indigo Snake

The **Eastern Indigo Snake** is a large, docile, nonpoisonous snake growing to a maximum length of about 8 feet. This species is currently known to occur throughout Florida and in the

coastal plain of Georgia. Historically, the range also included southern Alabama, southern Mississippi, and the extreme southeastern portion of South Carolina.

On the National Forests in Florida, the indigo snake seems to be strongly associated with high, dry, well-drained sandy soils, closely paralleling the sandhill habitat preferred by the gopher tortoise. During warmer months, indigo snakes also frequent streams and swamps, and some occasionally are found in flatwoods. Recent research sponsored by the US Fish and Wildlife Service (Smith, 2004) has shown the species to be much less restricted in habitat requirements than previously thought. In northeastern Florida, there are numerous records of the species from highly disturbed residential habitats. Gopher tortoise burrows and other subterranean cavities are commonly used as dens and for egg laying. Eastern indigo snake habitat exists on the Apalachicola, Ocala, and Osceola NFs. Local herpetologists feel that indigos are still present in low numbers on all three forests, but no sign of the species has been found since a 1998 sighting on the Osceola. We are aware of no sampling method that would help us detect a species that occurs at such low densities, so we are reliant on incidental sightings reported by employees or other friends of the Forests. The decline is attributed to a loss and fragmentation of habitat due to land uses such as construction, farming, forestry, pasture and to over collecting for the pet trade, and perhaps more than anything else, being killed when crossing roads . This snake's large size and docile nature have made it much sought after as a pet. The negative effect of “Rattlesnake Roundups" on the indigo snake are speculative. Both indigo snakes and rattlesnakes utilize the burrows of gopher tortoises at certain times. Rattlesnake hunters often pour gasoline down these burrows to drive out the snakes. While some indigo snakes may be killed by this practice, the actual degree of impact on the population is unknown.

Evaluation: There is much we don’t know about indigo snakes on the National Forests in Florida. We are concerned that they are not seen more often, but we are confident that adequate habitat is available for the species. Roads, habitat fragmentation, and over-collection are probably the biggest problems range wide for this species, but in relative terms, those problems are much less pronounced on the forests than they are elsewhere.

5-Year Trends: It is not possible to draw trends or conclusions about this species because of a lack of sightings. However, adequate habitat is available for the species.

The **Sand Skink** is discussed in the Management Indicator Species section of this report.

The **Gopher Tortoise** occurs in every Florida county, but is currently most numerous in southern Georgia and the northern and central portions of peninsular Florida. It has been documented on all three National Forests. This species requires well-drained loose soil for burrow construction, low-growing herbaceous forage, and open sunlit areas for nesting. The tortoise is primarily associated with longleaf pine sandhills, but is also found in sand pine scrub, dry prairies, pine flatwoods and mixed hardwood-pine communities. Old fields and roadside shoulders often support relatively high densities. Tortoises are found in relatively high densities on the Florida Gas pipeline right-of-way and Munson sandhills on the Apalachicola NF, the Olustee battlefield site on the Osceola NF and in the sand pine scrub on

the Ocala NF. The latter forest probably has the highest numbers due to the greater extent of deep, well-drained sandy soils and the early seral stage habitat created by sand pine clearcuts.

There is currently no forest-wide trend information for any of the forests, but revised Forest Plan Standards and Guidelines provide for tortoise protection. Standards WL-10, 11 & 12 provide for burrow protection and safe movement of individuals away from possible harm from management activities. The Forests are approved (by the FWC) recipient sites for gopher tortoises translocated from a variety of private land development sites. We have developed a translocation monitoring protocol to which potential applicants must adhere if they want to move tortoises to the forest. We are currently working in partnership with the FWC, St. Joe Land Company, and local governments to refine this monitoring protocol and accomplish research on the success of gopher tortoise translocation efforts.

Evaluation: The Gopher Tortoise is secure on the National Forests in Florida. As with a number of other species, we can expect Gopher Tortoise habitat to improve even more as we bring an increased number of acres under a regular prescribed burning regime.

5-Year Trends: There is no data available to identify a trend for this species.

The **Barbour's Map Turtle** was dropped from the revised Southern Regional Foresters Sensitive Species List effective January 1, 2002.

The **Apalachicola King Snake** has been confirmed in Franklin and Liberty counties. This snake lives primarily along wetland margins of bayheads, creek swamps, acid bogs, savannahs, roadside ditches, dwarf cypress stands, and evergreen shrub communities. Individuals occasionally wander into adjacent longleaf pine flatwoods. Little is known about the life history and ecology of this snake. Food probably consists of snakes, amphibians, eggs of ground-nesting birds and turtles, and rodents. There is no Forest Service data on population trends.

Evaluation: A major concern is over collecting. For the most part, habitat is secure, but a concern is the encroachment of titi into upland habitats as a result of fire exclusion.

5-Year Trends: Trends cannot be established for this species due to lack of knowledge of the species.

Florida Natural Areas Inventory has confirmed **Florida Pine Snake** in counties that encompass portions of all three NFs in Florida. The statewide range of the snake extends from the Florida panhandle east across north Florida and south to Lake Okeechobee. Habitat includes longleaf pine – xerophytic oak woodlands, sand pine scrub, well-drained pine flatwoods and sandhill sites. There is little information on this species, but it has been described as being extremely fossorial. It particularly seeks out the tunnel systems of pocket gophers, and the burrows of gopher tortoises to a lesser extent. Prescribed fire is recommended as a habitat management tool to insure the survival of this species.

Evaluation: Gopher tortoise Standards WL-10, 11 & 12 as well as the Forest-wide objective to burn all burnable acres on a three-year average should enable the pine snake to persist on the forest. There is no forest wide population and trend data on this species.

5-Year Trends: Trends cannot be established for this species due to lack of information.

The **Suwannee Cooter** is a river cooter, or turtle. In Florida, the river cooters are restricted to rivers, spring runs, and associated backwaters and impoundments that drain into the Gulf of Mexico. They are herbivorous, feeding principally on aquatic vegetation. They rarely venture onto land except to nest -- a behavior that probably takes place within a relatively short distance of the wetland (hundreds of yards). Most nesting occurs from April through early August. *Pseudemys concinna suwanniensis* is a variety found from the Tampa Bay region northwestward to the Apalachicola River, and has been confirmed to occur in Leon, Wakulla, Franklin, and Liberty counties.

Threats to this species include over harvesting for human consumption as well as habitat degradation caused by impoundments, dredging, and pollution. The Florida Fish and Wildlife Conservation Commission has established legal harvest limits for this species, which offers protections from excessive harvest. Current management standards (VG-8) in the forest plan direct that hardwood & cypress stands will not be managed for timber production. This offers habitat protection in those areas encompassed by National Forest ownership.

Evaluation: Due to the protections discussed above, the cooter is low priority for monitoring and inventory. We will rely on the latest information available from the Florida Fish and Wildlife Conservation Commission and the Florida Natural Areas Inventory for species trend information. No data has been collected for this species.

5-Year Trends: Trends cannot be established for this species due to lack of information.

Florida Scrub Lizard is found on the Ocala NF with a few records adjacent to the northern and southern borders of the Ocala NF. It prefers open sandy areas bordering sand pine scrub and sandhill associations, and could be described as a forest edge species. Habitat loss is the biggest threat to the scrub lizard in the State. Scrub-jay management and sand pine management as prescribed in the Forest Plan will sustain forest edge in sand pine habitats on the Ocala. There is no forest wide population and trend data on this species, though several studies have been done in the Ocala National Forest that determined scrub lizard population densities under varying habitat conditions. A large number of scrub lizards (110) were found at three different pond sites in association with the Ocala's Pond Monitoring Study (see Table 30, below).

Evaluation: Habitat for this species on the Ocala National Forest will remain secure due to our emphasis on sand pine and scrub habitat management for scrub-jays.

5-Year Trends: Trends cannot be established for this species due to lack of information.

Short-tailed Snake: Little is known of the life history and ecology of the **Short-tailed Snake**. It is a burrower, seldom seen above ground except in the spring and fall (April and

October). It is restricted chiefly to long-leaf pine – turkey oak associations, but is occasionally found in sand pine scrub. Its original range appears to include only the Ocala NF, which contains one of the largest remaining blocks of appropriate habitat. Management Objectives and Standards and Guidelines for the red-cockaded woodpecker in the Forest Plan will also provide protection for this species. There is no forest wide population and trend data on this species.

Evaluation: Because of the apparent dependence of the Short-tailed Snake on longleaf pine/turkey oak and sand pine scrub habitats, care must be taken when ground disturbing activities are planned in these areas.

5-Year Trends: Trends cannot be established for this species due to lack of information.

Amphibians

Threatened
***Ambystoma cingulatum*/Flatwoods Salamander**

Sensitive
***Amphiuma pholeter*/One-toed Amphiuma (added to list effective 01/01/2002)**
***Desmognathus apalachicolae*/Apalachicola Dusky Salamander (added 01/01/2002)**
***Notophthalmus perstriatus*/Striped Newt**
***Rana capito aesopus*/Florida Gopher Frog (dropped from list effective 01/01/2002)**

Adult **Flatwoods Salamanders** are fossorial (adapted for living underground). Breeding takes place in isolated ephemeral ponds, typically open cypress or bay domes with well-established grassy vegetation in the water. The adults migrate to and from the breeding ponds, sometimes traveling over a mile from the pond. Adults have been observed crossing paved highways and dirt roads during migration. As with with similar species, the adults can be expected to spend the majority of their time underground. It is assumed that adults are dependent on the thick ground cover provided by fire maintained wiregrass communities, especially during breeding migrations. Optimum habitat is open, mesic woodlands of pine flatwoods maintained by frequent fires

The flatwoods salamander is found in the Apalachicola National Forest and in one compartment on the Osceola National Forest. The known breeding ponds on the Apalachicola National Forest are in the Apalachicola Savannahs land-type association. The Apalachicola National Forest flatwoods salamander population is being studied in a cooperative project with the Forest, The Nature Conservancy, and the FWC as partners. Even though the principal investigators have been hampered by dry weather (see discussion below), they have discovered a number of previously unknown potential breeding ponds. Prior to 2002 (the beginning of the cooperative study), there were 35 historically known breeding ponds. Thirteen new ponds were identified in 2002. Four new ponds were discovered in both 2003 and 2004, and 7 new ponds have been found (to date) in 2005. This gives us a known total of 63 ponds and 21 separate flatwoods salamander populations. One concentration of flatwoods salamanders has virtually disappeared from the Forest, apparently as the result of heavy site preparation (chopping and bedding) in and around breeding ponds on nearby

private land. They may have also suffered from mortality while crossing a highway between the breeding ponds and the Forest. No breeding ponds for the flatwoods salamander have been confirmed on the Ocala NF, which lacks suitable habitat.

Temporary ponds are being degraded by mud bogging throughout the urban interface zone, which includes all of the Munson Sandhills. A large area was closed to vehicular traffic in 2003 because of the damage being caused by mud bogging. There is some concern that prescribed burning may have a lower tendency to burn through temporary ponds than does natural wildfire. It is possible that failure to reduce the duff layer may slowly reduce reproductive habitat for flatwoods salamanders. Extensive surveys for the flatwoods salamander have only been possible occasionally since Florida's extended drought began in 1998, because most breeding ponds have been dry.

Evaluation: Surveys continue to find additional breeding ponds used by Flatwoods Salamanders. Ground disturbing activities (chopping, etc.), activities that modify the hydrology (ditching, drainage) or habitat fragmenting activities (road construction) can adversely affect Flatwoods Salamander habitat and should be avoided in proximity to these breeding ponds.

5-Year Trends: Although the number of ponds discovered hosting flatwoods salamander populations has increased each year of the study since the study began in 2002, there is not enough data to draw trends or conclusions on this species.

The **One-toed Amphiuma** inhabits mucky soils in alluvial swamps and floodplain streams in the Florida and Alabama panhandles and the northern Gulf coast of Florida. Only 30 occurrences are known. This species was added to the Sensitive list effective 01/01/2002.

Evaluation: With so little information known about this species, it is difficult to evaluate its status on the forest. Based on known locations, it is probably present on the Apalachicola National Forest. Most authors indicate its rarity may have more to do with its secretive nature than actual rarity. Standards and guidelines of the LMP provide protection for the swamp and stream habitats used by this species, so it is secure on the forest.

5-Year Trends: There is no forest-wide population and trend data available for this species.

The **Apalachicola Dusky Salamander** inhabits forested ravines and mucky floodplain and bottomland forests. They occur in Florida, Alabama, and Georgia. This species has been confirmed in Bradwell Bay Wilderness Area in the Apalachicola National Forest, but there is no Forest-wide population and trend data available for this species.

Evaluation: Since this species has been confirmed in a proclaimed wilderness area, its future is secure there. No actions would occur in the wilderness that would jeopardize the forested, steep walled ravines with permanent seeps that provide habitat for these animals. Even though these types of habitats are unlikely to be disturbed outside the wilderness, the Forest will make an effort to inventory other, similar areas that might harbor this species.

5-Year Trends: Trends cannot be established for this species due to lack of information.

The **Striped Newt** is rare and localized in occurrence. They breed in isolated ponds in flatwoods, longleaf pine sandhills, and sand pine scrub habitats. Recent surveys have located only 32 breeding ponds in the entire geographic range of the striped newt - 17 of which are on the Apalachicola National Forest. All of the known breeding ponds on the Apalachicola National Forest are in the Munson Sandhills. The adult (eft stage) newts travel into the uplands surrounding the breeding ponds. Almost nothing is known about their biology in the uplands except they may travel considerable distances (at least half a mile and perhaps up to a mile and a quarter). A striped newt survey of 132 ponds in the Ocala National Forest in 1993 confirmed the striped newt in only one pond near Lake Delancy. The newts were neotenic (adults remained aquatic instead of metamorphosing to the terrestrial form). However, a 10 year study of 8 ponds in Norwalk and Salt Springs Islands- by Dr. Katie Greenberg of the Southeastern Research Station confirmed newts in all 8 ponds in at least one of the ten years of the study. This study showed that newts may occur in any isolated pond in suitable habitat, but that several years of monitoring may be needed to catch the cyclical and eruptive pattern of newt reproduction (Table 30). This study confirmed the presence of terrestrial efts in the Ocala National Forest population, which was previously assumed entirely neotenic.

Table 30.
Ocala NF Pond Monitoring
Number of ponds with records, Total number captured

Year	Striped Newts	Gopher Frogs	Round-tailed Muskrat	Scrub Lizard
1994	4, 15	7, 46	4, 6	No Data
1995	4, 4	8, 441	2, 4	No Data
1996	4, 10	8, 240	0, 0	No Data
1997	6, 94	7, 58	3, 3	No Data
1998	7, 777	8, 655	0, 0	No Data
1999	8, 876	4, 8	3, 3	No Data
2000	7, 264	5, 7	1, 1	No Data
2001	6, 101	7, 33	1, 1	No Data
2002	8,37	8,89	1,1	5.9
2003	1,13	8,107	0,0	No Data
2004	3,33	6,72	3,4	3.5`

Evaluation: At least 25 of 32 (78%) of the known breeding ponds for the Striped Newt occur on the Apalachicola and Ocala National Forests. Protection of these ponds is essential to the continued existence of this species. With this protection in place, viability of the species should be assured.

5-Year Trends: Due to limited information and high variability, trend determination is not possible.

Florida Gopher Frog was dropped from the revised Regional Forester's sensitive list effective January 1, 2002.

Mammals

Endangered
***Felis concolor coryi*/Florida Panther**
***Myotis grisescens*/Gray Bat**
***Trichechus manatus latirostris*/Florida Manatee or West Indian Manatee**

Sensitive
***Corynorhinus rafinesquii*/Rafinesque's Big-eared Bat (added to list effective 01/01/2002)**
***Mustela frenata peninsulae*/Florida Long-tailed Weasel (dropped from list 01/01/2002)**
***Neofiber alleni*/Round-tailed Muskrat**
***Podomys floridanus*/Florida Mouse**
***Sciurus niger shermani*/Sherman's Fox Squirrel**
***Ursus americanus floridanus*/Florida Black Bear**

The **Florida Panther** is a large, long-tailed felid with a great deal of color variation: pale brown or rusty upper parts; dull white or buffy under parts; and tail tip, back of ears, and sides of nose are dark brown or blackish. The only known self-sustaining population occurs in south Florida, generally within the Big Cypress Swamp physiographic region and centered in Collier and Hendry Counties. Currently, the wild population is estimated at 30 to 50 adult animals.

In general, panther population centers are in large remote tracts with adequate prey, cover, and reduced levels of disturbance. There are currently no known Florida panthers using National Forest lands. The Osceola NF is a possible reintroduction site. It was used in the mid-1990's as a reintroduction test site when sterile Texas cougars were released to test the possibility of future releases of Florida panthers. This experiment met with limited success; two animals were (illegally) shot, three were killed in highway accidents, and two died during project-related handling incidents. The remaining animals were removed from the wild upon conclusion of the study.

Evaluation: Although no Florida panthers are currently known to be using National Forest lands in Florida, there are potential reintroduction sites identified on the forests. Because of this, the National Forests in Florida are represented on the Florida Panther Recovery Team. The Forests will cooperate fully with the Recovery Team and the USFWS in assisting with the recovery of this species.

5-Year Trends: Because no known panthers are using the forest, trends cannot be established for this species.

Populations of **Gray Bats** are found mainly in Alabama, northern Arkansas, Kentucky, Missouri, and Tennessee, but a few occur in northwestern Florida, western Georgia, southwestern Kansas, southern Indiana, southern and southwestern Illinois, northeastern Mississippi, northeastern Oklahoma, western Virginia, and possibly western North Carolina. Distribution within the range is always patchy, but fragmentation and isolation of populations has been a problem during the past three decades. The gray bat population was estimated to be about 2.25 million in 1970; however, in 1976 a census of 22 important colonies in Alabama and Tennessee revealed an average decline of more than 50 percent. Due to protective measures taken at high-priority colony sites in the late 1970s and throughout the 1980s, the

declines have been arrested at some major sites, and those populations are now stable or in some cases increasing.

Gray bat colonies are restricted entirely to caves or cavelike habitats. Nine known caves are believed to house about 95 percent of the hibernating population. There are no caves on the National Forests in Florida that could provide the very specific conditions required by gray bats for roosting and breeding habitat. Gray bats occasionally may occur over the forests during migration or foraging. There is no Forest-wide population and trend data available for this species.

Evaluation: Gray bats have never been confirmed on the National Forests in Florida. Based on the known range (Jackson Co. in Florida), the only place they might show up incidentally is on the Apalachicola. Since they use caves during both the summer and the winter, and there are no suitable caves on the forest, they are unlikely to be encountered.

5-Year Trends: Because this species is not known on the forest, trends cannot be established.

The **Florida Manatee**, or West Indian Manatee, is a large gray or brown aquatic mammal. Although primarily herbivorous, they will occasionally feed on fish. Manatees may spend about 5 hours a day feeding and may consume 4 to 9 percent of their body weight a day.

During the winter months, the manatee population in the United States confines itself to the coastal waters of the southern half of peninsular Florida and to springs and warm-water outfalls as far north as southeast Georgia. Manatees also winter in the St. Johns River near Blue Spring State Park. During summer months, they may migrate as far north as coastal Virginia on the east coast and the Louisiana coast on the Gulf of Mexico. Manatee populations also exist outside the continental United States in coastal areas of the Caribbean and Central and South America

Silver Glen Springs from its point of origin to its confluence with Lake George and Lake George are the only areas of habitat with known use in the National Forests in Florida. The manatee population was probably more abundant in the 18th or 19th century than today. Initial population decreases probably resulted from over harvesting for meat, oil, and leather. Today, hunting is prohibited and is not considered a problem; although there is an occasional poaching incidence. Heavy mortality does occur from accidental collisions with boats and barges and from canal lock operations, however. Manatee population trends are poorly known, but deaths have increased steadily. The combination of high mortality rates and low reproductive rates has led to serious doubts about the species' ability to survive in the United States. Another closely related factor in the decline has been the loss of suitable habitat through incompatible coastal development, particularly destruction of sea grass beds by boating facilities.

Evaluation: There is no Forest-wide population and trend data available for this species. Since the state controls all navigable waterways, even those wholly on the National Forest, we have no control over the limited manatee habitat on the forest. Despite that, we work closely with the FWC and the Department of Environmental Protection (DEP) to protect habitat and

enforce boating speed limits. There are also two LMP Standards (WL-13 & 14) that speak specifically to protection of manatees and manatee habitat.

5-Year Trends: Trends cannot be established for this species because of limited information.

The **Rafinesque's Big-eared Bat** inhabits forests throughout the southeast. They use caves in mountainous areas as hibernacula and hollow trees in the southern coastal plain as summer roosts. This species has been confirmed in the Ocala National Forest in the Little Lake George Wilderness Area. A big-eared bat monitoring protocol has yet to be developed for the National Forests in Florida.

Evaluation: There is no Forest-wide population and trend data available for this species. Large hollow trees in floodplain forests are the places that we would be likely to find them. The floodplain forests these bats are likely to frequent are protected by Standards and Guidelines of the LMP.

5-Year Trends: Due to lack of information, trends cannot be established for this species.

The **Florida Long-Tailed Weasel** was dropped from the Regional Forester's sensitive species list effective 01/01/2002.

The **Round-tailed Muskrat** is restricted to Florida and southeastern Georgia. Shallow marshes with emergent vegetation constitute preferred habitat. The best habitat on the NFs in Florida likely occurs in the wet prairies on the Ocala NF. The muskrat has been confirmed in Franklin, Leon, Marion and Wakulla counties (encompassing portions of the Apalachicola and Ocala NFs); and is likely in Baker, Columbia, Lake, and Liberty counties (encompassing portions of all three NFs in Florida). The extended drought has dried prairies in the Ocala National Forest that had round-tailed muskrat colonies about 10 years ago. The muskrat has persisted in creeks and streams, such as Juniper Creek, and has been recorded at small isolated ponds in sandhills habitat that are monitored for the striped newt and other amphibians (ref. Table 30). Muskrats have been recorded at 7 of the 8 sampled ponds, and in 7 of the 10 years included in the study. Because the muskrats were not trapped regularly, they were either dispersing (transient) individuals or became trap-wise if resident. None of the ponds had the characteristic dome-shaped "muskrat house" that is formed of emergent wetland vegetation.

Evaluation: The species regularly turns up during sampling for the Ocala Pond Monitoring Study (see Table 30, above), but no other formal sampling is done for the species. The species has a high likelihood of persistence on the National Forest so long as the preferred open maidencane/pickerelweed habitats can be maintained with growing season burning.

5-Year Trends: Trends cannot be established for this species because there is no forest-wide population and trend data available.

The known range of the **Florida Mouse** includes the northern two-thirds of the Florida peninsula and an isolated area near Carrabelle in Franklin County. This range encompasses portions of the Osceola and Ocala National Forests. There is no estimate of the statewide population, but the statewide trend is likely downwards due to habitat loss.

The mouse is restricted to fire maintained, dry, upland vegetation on deep sandy soils. The major habitats are scrub, including sand pine scrub and scrubby flatwoods, and sandhill. Scrub is the primary habitat. It has been confirmed in Marion and Lake counties (encompassing portions of the Ocala NF) and is likely in Columbia County (encompassing portions of the Osceola NF) (FNAI, 1997). Due to the abundance of preferred habitat, this species most likely occurs in the greatest numbers on the Ocala NF, as.deep sandy soils are not widespread on the Osceola NF.

Evaluation: There is no forest-wide population and trend data available for this species. The forests are taking active measures to improve gopher tortoise habitats through prescribed burning, and Florida mice typically live in gopher tortoise burrows, so it is likely their viability, along with that of the gopher tortoise, is ensured on the National Forest.

5-Year Trends: Trends cannot be established for this species because there is no forest-wide population and trend data available.

The **Sherman's Fox Squirrel** is found on the Ocala and Osceola NFs (peninsular Florida east of the Aucilla River. Total population size is unknown, but this species has declined in proportion to the loss of mature, fire-maintained longleaf pine. Longleaf pine – turkey oak sandhills and flatwoods are the optimum habitat for this squirrel. Home range size averages 100 acres for males and 50 acres for females. Leaf nests predominate over cavities, and the squirrel may use up to 30 nests per year. More nests occur on the low slopes of sandhills rather than the uplands. The highest quality habitat might be along the edge of longleaf pine savannah and live oak forest, because live oak acorns appear to be a major food source when turkey oak acorn crops fail.

Evaluation: There is no forest-wide population and trend data available for this species. As the forests continue to improve habitat in the longleaf pine forests, habitat for the Sherman's Fox Squirrel should be improved - so long as we don't wipe out all the oak forests in the name of the RCW. The species is relatively widespread throughout central and northern peninsular Florida, albeit in localized populations, so viability of the species should not be in question.

5-Year Trends: Trends cannot be established for this species because there is no forest-wide population and trend data available.

The **Florida Black Bear** is discussed in the Management Indicator Species section of this report.

Mollusks

Endangered
***Ambla neislerii*/Fat Three-Ridge Mussel**
***Lampsilis subangulata*/Shiny-Rayed Pocketbook**
***Medionidus penicillatus*/Gulf Moccasinshell**
***Medionidus simpsonianus*/Ochlockonee Moccasinshell**
***Pleurobema pyriforme*/Oval Pigtoe**

Threatened
***Elliptoideus sloatianus*/Purple Bankclimber Mussel**

Sensitive
***Alasmidonta wrightiana*/Ochlockonee Arcmussel**
***Anodonta heardi*/Apalachicola Floater (added to sensitive list effective 01/01/2002)**
***Aphaostracon pycnus*/Dense Hydrobe**
***Cincinnatia vanhyningi*/Seminole Spring Siltsnail (added effective 01/01/2002)**
***Utterbackia peggyae*/Florida Floater (added to sensitive list effective 01/01/2002)**

The **Dense Hydrobe** and **Seminole Spring Siltsnail** are endemic to Alexander Creek and its tributaries in the Seminole District, Ocala National Forest.

The other mollusks on the PETS list occur near and within the Apalachicola National Forest in the Apalachicola and/or the Ochlockonee river systems. The **Purple Bankclimber** and the **Fat Three-ridged mussel** have both been collected from the Apalachicola River adjacent to the forest, with the former collected from the Ochlockonee River within the forest boundaries.

The mussels appear to have decreased because of habitat loss associated with reservoir construction, channel construction and maintenance, and erosion. They are intolerant of the still water in the lakes behind the dams. Populations of the shiny rayed pocketbook, Gulf moccasinshell, and purple bank climber have been isolated due to major impoundments on the Apalachicola, Flint, and Ochlockonee rivers. Smaller impoundments on tributary streams in the region have resulted in further population isolation of some of the species. None of these mussels occur in the navigation channels of the Chattahoochee or Flint rivers. The fat three ridge and the purple bank climber occur in portions of the Apalachicola River that have a navigation channel.

Observations by Forest Service and USFWS biologists during a July 20-22, 1993 field review indicated that the lower, unimpounded reaches of these rivers provided suitable refuge for the two mussels. The biologists felt that no Forest Service activities were adversely affecting these species. The revised Land and Resource Management Plan for the NFs in Florida directs that hardwood and cypress stands will not be managed for timber production. Consequently, river bottomland hardwoods will be retained with minimum disturbance.

The Florida-Caribbean Science Center of Biological Resources Division of the U.S. Geological Survey (USGS) in Gainesville, Florida surveyed for mussels in both the ACF (324 sites) and Ochlockonee (77 sites) river systems from 1991 to 1993.

Evaluation: The Forest is a source of free flowing, clean water flow into the Apalachicola and Ochlockonee Rivers. Silvicultural operations could exacerbate sedimentation if no buffer zones were left to avoid erosion and filter runoff. Road construction could cause similar problems. Current silvicultural activities following best management practices are compatible with the continued existence of the species. Forest Service management under the revised LRMP does not constitute a threat to these species. Forest plan Standard and Guide VG-8 (LRMP P.3-19) and WA-1 through WA-7 (LRPM, p.3-24 & 3-25) are expected to protect

water draining from National Forest lands. Watershed impacts related to agriculture, urbanization, and water management outside National Forest lands will have the definitive impacts on these species.

5-Year Trends: Trends cannot be established for these species because there is no Forest-wide population and trend data available.

Crustaceans

Sensitive
***Crangonyx hobbsi*/Hobb's Cave Amphipod**
***Procambarus attiguus*/Silver Glen Spring Cave Crayfish (added to list effective 01/01/2002)**
***Procambarus delicatus*/Big-cheeked Cave Crayfish**
***Procambarus orcinus*/Woodville Cave Crayfish**

Combined Evaluations:
Cave divers from the Woodville Karst Plain Project have documented **Hobb's Cave Amphipod** in the following sites in Leon and Wakulla Counties: Sullivan's Tunnel in Leon and River Sinks, Shepard Blue Springs, Sally Ward Spring, and McBride Slough in Wakulla.

Cave crayfishes forage on detritus that enters through the open mouth(s) of the cave system. It is presumed that water quality in the cave system is important to their survival. Protection of natural detritus flow and prevention of chemical contamination are often cited as the most important protective measures. Based on observations of divers, the part of the cave systems originating under the National Forests appears to be relatively clean. Water flows originating on private lands apparently are sometimes contaminated by surface water runoff that flows directly into open sink holes. There is no Forest-wide population and trend data available for these species.

The **Silver Glen Spring Cave Crayfish** is endemic to Silver Glen Spring in Marion County in the Lake George District, Ocala National Forest.

The **Big-cheeked Cave Crayfish** is endemic to Alexander Spring in Lake County in the Seminole District.

The **Woodville Cave Crayfish** is found in limestone sinkholes and caves. It is known from 15 sites and is relatively common in the cave system in and around the eastern side of the Apalachicola National Forest. This system is presently being explored by the Woodville Karst Plain Project, a local group of cave divers and scientists. The divers have documented this species in Leon and Wakulla Counties.

5-Year Trends: Trends cannot be established for these species because there is no Forest-wide population and trend data available.

Insects

Sensitive
***Atrytone arogos arogos*/Arogos skipper (added to sensitive list effective 01/01/2002)**
***Cordulegaster sayi*/Say's Dragonfly**
***Progomphus bellei*/Belle's Sand Clubtail**
***Somatochlora calverti*/Calvert's Emerald**

Combined Evaluations:
The **Arogos skipper** occurs in much of the eastern US. It lives in a variety of grassland habitats with local distribution defined by the availability of food plants. The Arogos skipper is known from a sandhills site west of Lake Delancy in the Ocala National Forest, where the larval food plant is lopsided indiangrass (*Sorghastrum secundum*).

This is the only xeric sandhill site known to be inhabited by the skipper, which occupies moist grasslands in other areas. The skipper has not been seen at the site for about 5 years. The species has not been confirmed in the Apalachicola or Osceola National Forests, but may occupy sandhills or flatwoods habitats there.

Say's Spiketail Dragonfly is associated with silt-bottomed spring seepages in hardwood forests, with nearby weedy clearings for foraging. It is known from 8 localities in northern Florida and 1 in central Georgia.

Belle's sand clubtail uses two habitat types, sand bottomed lakes and small sandy spring-fed trickles in the open. Their larvae burrow in the sand. Their range is apparently relatively small, including a few counties in the Florida panhandle.

Calvert's emerald, a metallic brown and green dragonfly is known only from the Florida Panhandle and a few specimens taken in South Carolina. Their habitat requirements are unknown. By analogy with similar species, it is assumed that the larvae probably live in boggy seepage trickles in hardwood forests.

5-Year Trends: There are no Forest-wide population and trend data available for any of these insect species.

1.7 Monitoring Question: Are we maintaining viable populations of PETS plant species and habitats to support them?

Item to Measure: Locations and numbers of PETS plant populations

Results and Evaluation

Endangered
Harperocallis flava/Harper's Beauty
Polygala lewtonii/Small Lewton's Milkwort
Nolina brittoniana/Britton's Beargrass

Threatened
Eriogonum longifolium var. *gnaphalifolium*/Scrub Buckwheat
Bonamia grandiflora/Florida Bonamia
Clitoria fragrans/Pigeonwings
Macbridea alba/White Birds-in-a-Nest
Scutellaria floridona/Florida skullcap
Pinguicula ionantha/Godfrey's Butterwort

Sensitive
Agalinis divaricata/Pinelands False Foxglove
Agrimonia incisa/Incised Groovebur
Andropogon arctatus/Pine-Woods Bluestem
Angelica dentata/Coastal-Plain Angelica
Aristida mohrii/Mohr's Threeawn
Aristida patula/Tall Threeawn
Aristida rhizomophora/Florida Threeawn
Aristida simplicifolia/Southern Threeawn
Arnoglossum diversifolium/Variable-leaf Indian-Plantain
Arnoglossum floridanum/Florida Indian-Plantain
Arnoglossum sulcatum Indian-Plantain
Asclepias curtissii/Curtis Milkweed
Asclepias viridula/Southern Milkweed
Aster chapmanii/Chapman's Aster
Aster eryngiifolius/Coyote Thistle Aster
Baptisia simplicifolia/Coastal Plain Wild Indigo
Berlandiera subacaulis/Florida Greeneyes
Boltonia apalachicolensis/Apalachicola Doll's Daisy
Calamintha ashei/Ashe's Savory
Calamintha dentata/Toothed Savory
Calapogon multiflorus
Carex baltzellii/Baltzell's Sedge
Carex decomposita/Cypress-knee Sedge
Centrocema arenicola/Sand Butterfly Pea
Cleistes bifaria/Small Spreading Pogonia
Coelorachis tuberculosa/Piedmont Jointgrass
Coreopsis nudata/Georgia Tickseed
Ctenium floridanum/Florida Orange-Grass
Euphorbia discoidalis/Summer Spurge
Forestiera godfreyi/Godfrey's Swamp Privet
Galactia microphylla/No Common Name
Gentiana pennelliana/Wiregrass Gentian
Hartwrightia floridana/Hartwrightia
Hasteola robertiorum/Hammockherb
Hymenocallis henryae/Panhandle Spiderlily
Hypericum chapmanii/A Saint John's-Wort
Hypericum exile/A Saint John's-Wort

Illicium parviflorum/Star-Anise
Justicia crassifolia/Thick-leaved Water Willow
Lachnoculon beyrichianum/Southern Bog Button
Lachnoculon digynum/Pineland Bog Button
Lachnoculon engleri/Engler's Bog Button
Lechea cernua/Nodding Pinweed
Lechea divaricata/Drysand Pinweed
Linum westii/West's Flax
Litsea aestivalis/Pondspice
Lupinus westianus/Gulf Coast Lupine
Lythrum curtissii/Curtiss' Loosestrife
Macranthera flammea/Hummingbird Flower
Magnolia ashei/Ashe's Magnolia
Matelea floridana/Florida milkvine
Matelea pubiflora/Trailing milkvine
Micranthemum glomeratum/Manatee Mudflower
Monotropsis odorata/Sweet Pinesap
Myriophyllum laxum/Piedmont Water-Milfoil
Najas filifolia/Needleleaf Waternymph
Nemastylis floridana/Fall-Flowering Ixia
Nolina atopocarpa/Florida Beargrass
Nyssa ursina/Bog Tupelo
Oxypolis ternata/Piedmont Cowbane
Parnassia caroliniana/Carolina Grass of Parnassus
Paronychia rugelii/Rugel's Nailwort
Persea humilis/Scrub Bay
Phlox floridana/Florida Phlox
Phoebanthus tenuifolia/Pineland False Sunflower
Physalis arenicola/Cypresshead Groundcherry
Physalis carpenterii/Carpenter's Groundcherry
Physostegia godfreyi/Apalachicola Dragonhead
Pieris phillyreifolia/Climbing Fetterbush
Pinckneya bracteata/Fevertree
Pinguicula ionantha/Godfrey's Butterwort
Pinguicula planifolia/Chapman's Butterwort
Pityopsis flexuosa/Bent Golden Aster
Pityopsis oligantha/Coastal-Plain Golden-Aster
Plantago sparsiflora/Pineland Plantain
Platanthera integra/Yellow Fringeless Orchid
Polygala hookeri/Hooker's Milkwort
Polygala leptostachys/Georgia Milkwort
Polygonella macrophylla/Largeleaf Jointweed
Pteroglossaspis (= Eulophia) ecristata/Wild Coco
Pycnanthemum floridanum/Florida Mountainmint
Quercus arkansana/Arkansas Oak
Rhexia parviflora/Small-Flowered Meadow Beauty

Rhexia salicifolia/Panhandle Meadow Beauty
Rhododendron austrinum/Orange Azalea
Rhynchosia michauxii/Michaux's Snoutbean
Rhynchospora breviseta/Shortbristle Beaksedge
Rhynchospora crinipes/Hairy-peduncled Beakrush
Rhynchospora macra/Large Beakrush
Rhynchospora pleiantha/Coastal Beaksedge
Rudbeckia graminifolia/Grassleaf Coneflower
Rudbeckia nitida/Shiny Coneflower
Ruellia noctifolia/White-Flowered Wild Petunia
Salix floridana/Florida Willow
Sarracenia leucophylla/Crimson Pitcherplant
Schisandra glabra/Bay Starvine
Schoenocaulon dubium/Florida Feathershank
Schoenolirion albiflorum/White Sunnybells
Scutellaria floridana/Florida Skullcap
Scutellaria glabriuscula/Georgia Skullcap
Sideroxylon alachuense/Silver Buckthorn
Sideroxylon tenax/Tough Bumelia
Silphium simpsonii/Simpson's Rosinweed
Sisyrinchium xerophyllum/Jeweled Blue-eyed Grass
Spigelia loganiodes/Florida Pinkroot
Spiranthes longilabris/Giant Spiral Ladies'-tresses
Sporobolus curtissii/Pineland Dropseed
Sporobolus floridanus/Florida Dropseed
Sorghastrum apalachicolense/Apalachicola Indiangrass
Sporobolus floridanus/Florida Dropseed
Stachydeoma graveolens/Mock Pennyroyal
Stylisma abdita/Showy Dawnflower
Tephrosia mohrii/Pineland Hoary-Pea
Verbesina chapmanii/Chapman's Crownbeard
Verbesina heterophylla/Diverseleaf Crownbeard
Vicia ocalensis/Ocala Vetch
Warea sessilifolia/Sessile-Leaved Warea
Xyris chapmanii/Chapman's Yellow-eyed Grass
Xyris drummondii/Drummond's Yellow-eyed Grass
Xyris isoetifolia/Quillwort Yellow-eyed Grass
Xyris longisepala/Karst Pond Xyris
Xyris louisianica/Kral's Yellow-eyed Grass
Xyris scabrifolia/Harper's Yellow-eyed Grass
Zephyranthes simpsonii/Redmargin Zephyrlily

Proposed, Threatened and Endangered (PETS) species which are also Management Indicator Species (MIS), are discussed under monitoring question 1.1.

Many of the PETS plants on the National Forests in Florida are rare endemics and have become even more rare due to loss of habitat over the last 100 years. Others were once more widely distributed, but have become rare due to loss of habitat. The habitat of most of these species depends upon frequent fire. Habitat loss has resulted from a combination of fire exclusion, mechanical disturbance, and conversion to pine plantations.

Considering the reasons for loss of habitat, one of the most reliable ways to track population viability is by monitoring those activities that affect habitat. Such activities include acres maintained/restored by burning (page 77), acres restored by thinning (page 80), and acres restored to longleaf (page 79), verses acres of mechanical disturbance (page 78).

In addition to monitoring habitat, the monitoring of plots established within known populations and field surveys to detect previously unknown and/or new occurrences should provide direct evidence of population viability.

Permanent monitoring plots have been established for seven of the T & E plants known to occur on the National Forests in Florida. A field survey on the Ocala is needed to establish the distribution of *Clitoria fragrans*. To date, only two individuals of *C. fragrans* have been observed on the Ocala.

The Ocala National Forest was surveyed in the early 1990's to establish the distribution of *Bonamia grandiflora*, *Polygala lewtonii*, and *Eriogonum longifolium*. *Clitoria fragrans* and *Nolina brittoniana* were subsequently discovered on the Ocala. The Apalachicola National Forest routinely conducts surveys following fire to determine the distribution of *Harperocallis flava*, *Macbridea alba*, *Pinguicula ionantha*, and *Scutellaria floridana*. In order to make this data more readily available, the Apalachicola National Forest is entering this distribution data in GIS.

Most of the Sensitive plants known or likely to occur on the National Forest in Florida are fire dependant components of wiregrass communities. A few are components of the scrub communities. These species require similar habitat to the T & E plants associated with these respective communities. Therefore, it is reasonable to assume that those activities that maintain or improve habitat for these listed T & E Plants will also serve to provide habitat for those sensitive plants that occupy similar habitat.

A few sensitive plants are associated with canopied wetlands and mesic hardwood forests. These areas are not considered suitable for timber production and are not significantly affected by Forest Service management activities.

Inventories conducted through field surveys provide good information concerning the distribution of PETS plants on the Forest. Revisiting known occurrences provides qualitative information as to whether these species are persisting. The Forest Service continues to gather data on the distribution of PETS plants through field surveys associated with management activities.

The monitoring plots established in 1996 were part of a larger ecosystem classification project entered into with the University of Florida. Permanent vegetation monitoring plots were established on all five Ranger Districts. Data was to be taken from these plots on soils and vegetation. Beginning in 1997, 101 Land Type Association (LTA) plots were established on the ANF, 50 on the Apalachicola Ranger District (ARD) and 51 on the Wakulla Ranger District (WRD).

In 2000, those plots with recorded occurrences of MIS plants were identified and the decision was made to use data obtained from these LTA plots to track MIS species trends also. To date, five of the above listed MIS species have been documented on 43 of the 50 plots on the ARD (*Aristida beyrichiana, Ctenium aromaticum, Sporobolus floridanus, Sporobolus junceus* and *Xyris stricta).* Four of the above listed MIS species have been documented on 30 of the 51 plots on the Wakulla District (*Aristida beyrichiana, Ctenium aromaticum, Sporobolus floridanus,* and *Sporobolus junceus).* Meaningful trend information is not yet available since these plots have been sampled only once. In addition to these LTA plots, twelve plots (three per species) were established for the federally listed MIS plants *Harperocallis flava, Macbridea alba, Pinguicula ionantha,* and *Scutellaria floridana.* Initial data has been collected from all of these plots and they have been revisited anywhere from 2-5 times each. Trend data is not available as of yet. Baseline data for all MIS species can be found in the *2001 Annual Monitoring and Evaluation Report for the National Forests in Florida*.

The LTA plots were intentionally placed on sites selected because they were thought to closely represent the potential natural vegetation of their respective communities. In order to track the success of efforts to improve or restore the natural native communities on degraded sites, plans are to establish similar monitoring plots on pine plantations and other degraded sites.

5-Year Trends: Years of monitoring are required to establish population trends. Monitoring plots established in 1996 to monitor T & E plants have not been in place long enough to establish population trends. In most cases, three plots were established to monitor each species. Three plots are insufficient to provide reliable trend data.

Forest Plan Goal:

- Apply prescribed burning technology as a primary tool for restoring fire's historic role in ecosystems.

Forest Plan Objective:

- Prescribe burn on average every 3 years with varied intervals on any given site to restore natural processes in all sites where the natural-fire-return interval was less than 10 years. Strive to burn 50 percent of those acres between March 15 and September 30 and 20 percent between May 1 and July 31. This includes wilderness, wilderness study areas, and the Savannah research natural area.

1.8 Monitoring Questions: What is the burning interval of upland pine acres? In what months have upland pine been burned?

Items to Measure: Acres of upland pine burned. Acres burned by month.

Results: Total Acres burned on the National Forests in Florida in the last 3 years are shown in Table 30.

Table 30.
Acres Burned

Year	Acres
2002	141,109
2003	190,090
2004	144,267
Total	475,466

Table 31 provides the breakdown of acres burned by month in FY2004.

Table 31. Upland Pine Percent Burned by Month

Month	Percent
October	1.82
November	6.97
December	12.52
January	21.26
February	19.65
March	2.70
April	0.00
May	4.67
June	10.60
July	16.81
August	3.00
September	0.00
Total	100

Evaluation: An average of 150,000 acres every 3 years should be burned to maintain the upland pines. The Forest should strive to burn 50% of those acres (75,000 acres) between March 15 and September 30, and 20% (30,000 acres) between May 1 and July 31.

Based on the upland pine Management Area 7.1 acres of 507,740, 93% of this type, 475,466 acres were burned in the last 3 years (2002, 2003, 2004). In FY 2004, of the 144,267 acres only 38% of these acres were burned between March 15 and September 30, which is below the 50% objective. However, 32% were burned between May 1 and July 31 which exceeded the 20 percent objective for these months. Average yearly acreage burned over the past three years is 158,488.

5-Year Trends: Total burned acres are below the objective, however the last two years show an increase. This shortfall is primarily the result of weather conditions which limit burning opportunities. Also the Forest has consistently exceeded the objective for May through July while being slightly lower than the objective for March through September. These differences are also primarily attributed to weather conditions and burning opportunities.

Table 31a. Five-Year burn history

Year	March- September Objective of 50%	May – July Objective of 20%	Total 3 year Burn Percent
2000	13	0	69
2001	56	35	61
2002	0	35	60
2003	49	28	86
2004	38	32	93

Forest Plan Standards and Guidelines for Fire are found on pages 3-3 through 3-4 of the Forest Plan and Include standards **FI-1** through **FI-14.**

Forest Plan Standards and Guideline FI-7—Minimize the use of plowed firelines for prescribed burns. Favor the use of alternatives such as disked firelines, foam, water, existing roads, or natural barriers.

1.9 Monitoring Question: How many miles of firelines were plowed for prescribed fire and wildfires? How many miles were restored?

Item to Measure: Miles of plowed firelines for each purpose. Miles of plowed firelines restored.

Results: A total of 275 miles of firelines were re-worked (plowed, bladed, or disked) for prescribed fire during FY2004. Two and a half (2½) miles of new lines were plowed for prescribed fire. As a result of wildfire 75 miles of firelines were constructed.

During FY2004, 107 miles of plowed firelines were restored.

Alternative Firelines (swamp, foam, water, existing roads, disked lines): Alternative firelines utilized for prescribed fire totaled 558 miles. Alternative firelines utilized for wildfires totaled 33 miles.

Evaluation: Based on the numbers, the Forest has been able to achieve an emphasis on reducing plowlines. The large increase in miles of fireline generated by wildfire reflects two large fire incidents in the spring of 2004. Additionally, the M&E Reports for the previous 4 years do not distinguish whether these restored firelines were for prescribed burns or wildlfires, and the districts need to begin tracking this instead of reporting the total miles restored. Forest-wide standard FI-8 states the Forest will rehabilitate new plowed firelines used for prescribed fire, unless that rehabilitation will cause unacceptable damage. This is a monitoring item (Monitoring Question 1.9 above) that must be tracked separately to insure we are meeting Forest-wide standard FI-8.

Table 31b. Number of miles of fireline plowed and miles restored.

Year	Miles Plowed	Miles Restored
2000	210	85
2001	48	44
2002	48	29

Year	Miles Plowed	Miles Restored
2003	222	8
2004	275	107

5-Year Trends: The total number of plowed firelines restored or rehabilitated has been decreasing each year, from 85 miles in FY2000, to 44 in FY2001, then down to 29 miles in FY2002, and only 8 miles restored in FY2003. The 107 miles of plowed firelines restored in FY2004 represents an attempt to increase the number of miles restored, and the Forest needs to do a better job in restoring new plowed firelines so that we do not return to the downward trend.

Forest Plan Standards and Guideline FI-7—Minimize the use of plowed firelines for prescribed burns. Favor the use of alternatives such as disked firelines, foam, water, existing roads, or natural barriers.

Evaluation: A total of 275 miles of firelines were re-worked during FY2004. Two and one half (2½) miles of new firelines were plowed for prescribed fire. Wildfire resulted in the construction of 75 miles of firelines. The forest needs to reverse this trend and take more advantage of alternative types of firelines in order to comply with Forest-wide standard FI-7.

5-Year Trends: Many more plowlines were created this year during fire suppression (75) than in past years of this Forest Plan. Forest-wide standard FI-7 states that the forest will minimize the use of plowed firelines for prescribed burning. The number of firelines plowed in FY2004 for prescribed burns, 275 miles, is the highest amount yet under this Forest Plan. The data show there has been a large increase in the number of these, from 140 miles plowed in FY2000, to 121 miles plowed in FY2002, and 222 miles plowed in FY2003. FY2001 was the only year with a low number of miles plowed for prescribed burns (3 miles); otherwise, there is a steady increase in the number of miles plowed for prescribed burns. Until this year, the number of miles of firelines plowed for wildfires had been noticeably decreasing each year since FY2000, from 70, to 45, to 31, to 8 miles in FY2003. The 75 miles plowed for wildfires this fiscal year represents a dramatic increase. The use of alternative firelines could help the Forest improve in this area, also.

Forest Plan Objective:

- Restore between 10,000 and 15,000 acres of off-site slash pine to the appropriate native vegetation in the next 10 years. Remove slash pine from 8,000 acres of mixed longleaf/slash pine stands on the Osceola NF. The long-term objective is to restore all the off-site slash pine to the appropriate native vegetation.

1.10 Monitoring Question: How much off-site slash pine has been restored to other types?

Item to Measure: Acres type-converted from slash pine to other species.

Results: 847 acres have been restored to longleaf pine from off-site slash pine through the end of FY 2004. No slash pine was removed from mixed stands on the Osceola in FY 2004.

Evaluation: This objective has not been met due to higher priorities for management actions on the forest. In order to meet the 10-year objective, a five-year action plan has been developed to aid in the identification and prioritization of vegetation management activities on the forest. Additional efforts should be made during project planning to increase the acreage of restoration. Over the next five years of the Forest Plan, 9,153 acres of off-site slash pine will need to be offered to meet the minimum objective in the Forest Plan. This is an average of 1,830 acres offered each year. With a total of 847 acres of off-site slash offered over the past five years, it is likely that the Forest will not achieve this objective. Although the objective is not being met at this time, it remains a valid objective to maintain in the 1999 Revised LRMP.

5-Year Trends: 5-year trends indicate the Forest will not achieve the objective in the Plan.

1.11 Monitoring Question: Are we collecting data on understory structure?

Item to Measure: CISC report data on understory field

Results: 77% of the 500, 600 and 700 series land classes in the CISC data have understory codes assigned. These land classes represent acreage suitable for timber management and are the only classes of land that receive a formal silvicultural examination. CISC is updated to the results of the silvicultural examinations. Other land classification acreage may be examined and CISC data updated by other resource areas as their needs dictate.

Evaluation: The CISC database has been replaced by the FSVeg database, which should allow for collection and storage of more detailed understory vegetation information. The purpose of this monitoring item is to ensure that data is collected in order to provide information for the next Plan revision.

5-Year Trends: In the last four Monitoring and Evaluation reports it was reported that 82% of the 500, 600, and 700 series land classes have understory codes assigned. It is not clear why only 77% is reported for FY2004. In any case, this is well over half of the suitable land classes for which data has been collected on understory. This information will be transferred into the FSVeg database and available for future use. The Forest should be able to complete the rest of these land classes over the next five years.

Forest Plan Objective:

- Thin 45,000 to 55,000 acres of longleaf and slash pine stands to release overcrowded live crowns, favor appropriate pine species for regeneration, increase stand growth, allow more sunlight onto the forest floor, and increase suitable habitat for red-cockaded woodpeckers (RCWs).

1.12 Monitoring Question: How many acres have been offered for thinning?

Item to Measure: Number acres thinning harvest offered

Results: Through FY 2004, 6,739 acres were offered for thinning purposes.

Evaluation: This objective has not been met due to higher priorities for management actions on the forest. In order to meet the 10-year objective, a five-year action plan has been

developed to aid in the identification and prioritization of vegetation management activities on the forest. In order to meet the minimum objective of at least 45,000 acres over the life of the Forest Plan, the Forest would have to offer approximately 7,652 acres each year for the next five years. It is unlikely that the Forest will offer this amount and will probably not meet this objective. Although the objective is not being met at this time, it remains a valid objective to maintain in the 1999 Revised LRMP.

5-Year Trends: The forest has averaged approximately 1,300 acres per year. This shortfall is primarily due to higher priority objectives for limited management resources.

Forest Plan Objective:

- Replace between 500 and 1,000 acres of the off-site sand pine to the appropriate native vegetation in the next 10 years. The long-term objective is to restore the off-site sand pine to the appropriate native vegetation.

1.13 Monitoring Question: How much off-site sand pine has been restored, and to what other types?

Item to Measure: Acres type-converted from off-site sand pine to other species

Results: A total of 706 acres of off-site sand pine have been restored to longleaf pine through FY 2004.

Evaluation: The results from the first five years of plan implementation indicate that the objective for the plan period has been met. Restoration of off-site sand pine remains an important objective and these efforts should continue as opportunities and resources become available.

5-Year Trends: With the exception of FY 2001, the Forest has averaged between 200 and 300 acres a year.

Forest Plan Objective:

- Initiate uneven-aged management with group selection harvests on 30,000 to 33,000 acres principally in longleaf pine forests with some in slash pine forests.

1.14 Monitoring Questions: On how many acres have we initiated uneven-aged management harvest? Is the group selection method producing the anticipated desired conditions in the longleaf pine ecosystem and what are the effects of group selection harvest in longleaf pine?

Items to Measure: Number acres offered with uneven-aged harvest. Tree stem diameter and frequency, frequency of seed crops, longleaf pine regeneration establishment and survival, growth, and development of seedlings, pine midstory development and distribution, costs and returns of implementation of harvesting, costs and effects of burning within harvest units, plant species frequency and distribution, PETS species population trends/habitat conditions, MIS plant/animal population trends/habitat conditions.

Results: Through FY 2004, 1,801 acres have been offered with uneven-aged management harvest methods. An evaluation of the effects of this harvest method is to be reported in five-

year intervals. There were not any studies initiated in FY 2004; however, the requirements for this are known and recognized. Areas that may be suitable for this work are being surveyed, examined, and assessed for inclusion in future years work scheduling.

Evaluation: This objective has not been met due to higher priorities for management actions on the forest. In order to meet the 10-year objective, a five-year action plan has been developed to aid in the identification and prioritization of vegetation management activities on the forest. In order to meet the objectives of the Forest Plan, efforts should be made to increase the acreage offered for uneven-aged harvest. More detail can be found concerning the effects of group selection under Research Needs in part III of this report. Over 28,000 acres of uneven-aged harvest would need to be offered over the next five years, a yearly average of 5,600 acres. Although the objective is not being met at this time, it remains a valid objective to maintain in the 1999 Revised LRMP.

5-Year Trends: Most of the 1800 acres were offered in FY 2000.

Forest Plan Objective:

- Initiate irregular shelterwood harvests on between 1,800 and 2,000 acres of slash pine forests.

1.15 Monitoring Questions: How many acres have we initiated irregular shelterwood harvest? Is the irregular shelterwood method producing the anticipated desired conditions in the slash pine forest?

Items to Measure: Number acres offered with irregular shelterwood harvests. Growth and development of seedlings, costs and returns of implementation of harvesting, costs and effects of burning within harvest units, plant species frequency and distribution, PETS species effects/population trends.

Results: There were no acres of irregular shelterwood offered for harvest for FY 2004. An evaluation of the effects of this harvest method is to be reported in five-year intervals. There were no studies initiated in FY 2004.

Evaluation: This objective has not been met due to higher priorities for management actions on the forest. There should be an effort to schedule areas for harvest using this method in the future. The Forest will need to identify and offer at least 1,800 acres under this method over the next five years in order to meet the minimum objective in the Forest Plan. In order to meet the objectives of the Forest Plan areas that may be suitable for this work are being surveyed, examined, and assessed for inclusion in future years work scheduling. Although no accomplishments have been initiated at this time, this remains a valid objective to include in the 1999 Revised LRMP.

5-Year Trends: No irregular shelterwood harvests have been scheduled.

Forest Plan Objective:

- Regenerate between 39,000 and 41,000 acres of sand pine on the Ocala NF.

1.16 Monitoring Question: How many acres of sand pine have had a regeneration harvest?

Item to Measure: Number acres offered with sand pine regeneration harvest

Results: There were 10,500 acres of sand pine committed to regeneration harvest through the end of FY 2004. 2,751 acres of sand pine were offered for regeneration harvest in FY 2004.

Evaluation: This objective has not been met primarily due to limited management resources on the Forest. In order to meet the 10-year objective, a five-year action plan has been developed to aid in the identification and prioritization of vegetation management activities on the forest. In order to meet the 10-year Plan objective, efforts should be made to increase the acreage committed to sand pine regeneration. The Forest has offered a total of 10,500 acres of sand pine for regeneration harvest over the last five years, which is only one-quarter of the minimum objective (39,000 acres). The Forest will need to harvest at least 28,500 acres over the next five years, or roughly 5,700 acres each year, to meet the minimum objective. Although the objective is not being met at this time, it remains a valid objective to maintain in the 1999 Revised LRMP.

5-Year Trends: The forest has averaged approximately 2,000 acres per year.

Forest Plan Standards and Guidelines for size and distribution of sand pine openings are found on pages 4-45, 4-47, & 4-48 and includes standards and guidelines **8.1-3, 8.2-3 and 8.4-3.**

1.17 Monitoring Question: What is the size and distribution of openings in sand pine?

Item to Measure: Size of opening

Results: The average size of sand pine openings in ages 3-15 years in FY 2004 is 82 acres. The average size of openings created since 2000 is 57 acres. Since FY 2000, there have been 19 openings created greater than 100 acres. In 2004, there were 8 openings created greater than 100 acres. The largest opening with ages 3-15 is 934 acres.

Evaluation: The Forest Plan desired condition of sand pine scrub openings is to have large openings up to 160 acres in most of the forest and up to 320 acres in portions of the forest. While some large openings have been created, the average size of acres committed to regeneration in FY 2003 is smaller than desired. The purpose of increasing the size of opening is to maximize scrub-jay occupancy. While the regeneration areas are smaller than desired, they are now allowed to be placed adjacent to scrub-jay habitat and no longer required to wait five years before entry. Figure 13 shows the distribution of scrub-jay habitat on the Ocala National Forest. The Forest should emphasize placing regeneration harvest areas adjacent to current scrub jay habitat in order to achieve the large openings in sand pine that is the desired future condition described in the Forest Plan.

5-Year Trends: The 5-year trend is an increase in the size of opening created for scrubjay habitat. The average size has increased from 52 acres in FY 2000 to 82 acres in FY 2004.

Figure 13. Distribution of Scrub Jay Openings – Ocala NF

Forest Plan Objective:

- Designate the following acres of future old growth by community type (Table 32):

Table 32. Old-Growth Community Objectives

Old-Growth Community	Acres
Upland Longleaf Pine Forest	10,200
Southern Wet Pine Forest, Woodland, and Savannah	11,000
Cypress/Tupelo Swamp Forest	17,700
River Floodplain Hardwood Forest	2,900
Hardwood Wetland Forest	24,200
Dry and Dry Mesic Oak/Pine Forest	2,200
Coastal Plain Upland Mesic Hardwood Forest	1,700
Dry and Xeric Oak Forest, Woodland, and Savannah	2,100
Total	**72,000**

1.18 Monitoring Question: Have old-growth stands been designated in each community type?

Item to Measure: Acres of old growth by community type designated in CISC

Results: Old growth has been designated on the Apalachicola NF and the table below shows the acres of each community designated.

Table 33. Old-Growth Designations

Old-Growth Community	Apalachicola
Upland Longleaf Pine Forest	6,836
Southern Wet Pine Forest, Woodland, and Savannah	9,944
Cypress/Tupelo Swamp Forest	6,120
River Floodplain Hardwood Forest	1,548
Hardwood Wetland Forest	8,423
Dry and Dry Mesic Oak/Pine Forest	1,686
Coastal Plain Upland Mesic Hardwood Forest	315
Dry and Xeric Oak Forest, Woodland, and Savannah	410
Total	**35,282**

Evaluation: Old growth should be designated on the Ocala and Osceola NF. A review of acres available suitable for old growth designation on the Osceola and Ocala NF in management areas where there is no scheduled timber harvest to provide for sustained yield timber production are listed below by community type. This shows the potential for old growth in these management areas as an example. Approximately half of the area objective has been met. This remains a valid objective to maintain in the 1999 Revised LRMP.

5-Year Trends: The Ocala and Osceola NFs have not yet designated old growth stands and need to do this over the next five years.

Table 34. Acres available for old growth designation in management areas classed as unsuitable for timber production on the Osceola and Ocala NF

Old-Growth Community	Osceola	Ocala	Total
Upland Longleaf Pine Forest	932	1,175	2,107
Southern Wet Pine Forest, Woodland, and Savannah	1,490	9,171	10,661
Cypress/Tupelo Swamp Forest	9,469	848	10,317
River Floodplain Hardwood Forest	269	841	1,110
Hardwood Wetland Forest	2,056	11,163	13,219
Dry and Dry Mesic Oak/Pine Forest	0	32	32
Coastal Plain Upland Mesic Hardwood Forest	0	354	354
Dry and Xeric Oak Forest, Woodland, and Savannah	0	1,308	1,308
Total	**14,216**	**24,892**	**39,108**

Forest Plan Goals:

- Obtain a national forest ownership pattern that reduces management costs and helps meet ecosystem management objectives. Acquire land to connect large tracts of public ownership to maintain biologic and hydrologic linkages in partnerships with other public agencies. Locate and maintain national forest boundaries that are visible to forest users and neighbors.

Forest Plan Objectives:

- Evaluate Choctawhatchee lands that no longer exhibit national forest character and consider for exchange for lands adjacent to or within the Apalachicola, Ocala, and Osceola National Forests. Exchange national forest land along the Ocklawaha River for State-owned land within national forest boundaries. Exchange Forest Service-owned minerals under Withlachoochee and Blackwater State Forests for land within Pinhook purchase unit.

- Acquire land within the 170,600-acre Pinhook purchase unit. Within the Apalachicola, Ocala, and Osceola National Forests, annually acquire a minimum of 200 acres of forest inholdings. Acquire 6,500 acres adjacent to the Ocala NF.

1.19 Monitoring Question: Have land purchases and exchanges met the objectives established in the Forest Plan?

Item to Measure: Itemized by map what has been gained and what has been exchanged; miles of landlines maintained

Results: There were over 22 miles of boundary lines marked/maintained of National Forest System lands in Florida in FY 2004. New lines were established through purchase that were not marked and posted to standard due to limited funding and staffing.

In FY 2004, over 1,350 acres were acquired through multiple transactions within the Florida National Scenic Trail acquisition corridor and the Pinhook Swamp Purchase Unit. In addition, throughout FY2004, efforts were underway to work through the remaining steps required to close the State of Florida Land Exchange that will result in the addition of over 18,528 acres to the Osceola National Forest. In addition, acquisitions for the Florida National Scenic Trail, while not identified when the Forest Plan was signed, have been increasing in the last three years.

On December 3, 2003, the Florida National Forests Land Management Act was passed by Congress authorizing the Forest Service to sell or exchange 17 identified tracts in Florida. Appraisals are underway for two of these tracts.

Evaluation: The newly acquired lands for the Florida National Scenic Trail need to be addressed with a Plan Amendment to assign them to a Management Area or to create a Management Area specifically for the FNST. Constraints on funding continue to impede our ability to fully meet our potential and expectations within the program.

5-Year Trends:

Table 35. 5-year summary land purchase, exchange and landlines.

Monitoring item	2000	2001	2002	2003	2004
Landlines (miles)	34	3	47	30	22
Choctawhatchee lands (acres)	0	0	0	0	0
Oklawaha River (acres)	0	0	0	0	0
Withlachoochee Minerals (acres)	0	0	0	0	0
Pinhook (acres)	0	0	2,275	605	1,032
Forest Inholdings (acres)	37	0	103	6	12
Lands adjacent to Ocala (acres)	0	0	0	0	0
Florida National Scenic Trail			512	11	321

The Forest has made substantial progress toward meeting land acquisition objectives. Due to the complexity and uncontrollable parameters of this work it is impossible to identify a meaningful trend.

Forest Plan Standards and Guidelines for soil and water are found on pages 3-24 through 3-25 of the Forest Plan and include standards and guidelines **WA-1** through **WA-7.**

1.20 Monitoring Questions: Are aquatic and terrestrial ecosystems being impaired by acid deposition? Is water quality being maintained?

Items to Measure: Change in water chemistry regarding acid neutralization. Fecal coliform – swim sites; drinking water – recreation areas and administrative sites; chemistry – State well sites

Results: Results of the National Stream Survey by the U.S. Environmental Protection Agency, 1988, found Florida to have a relatively high percentage of acid, low pH, low acid

neutralizing capacity streams. Although streams and lakes in Florida are known to be acidic naturally, concerns exist over the added impact acid deposition may have on these already acid systems. For these reasons two studies were initiated in FY2000 to address impacts that acid deposition may be having on the aquatic and terrestrial ecosystems. The first study involves a look at chrysophyte populations in thirty lakes on the Ocala N.F. Chrysophyte samples were collected from vegetation surfaces, bottom sediments and water at each of the thirty lakes. Chrysophyte distributions for these samples were correlated with lake water chemistry, including acidity and pH, to develop statistical relationships between water chemistry and chrysophyte distributions. Chrysophyte population changes over time will also be determined for several lakes. Bottom sediment core samples will be divided into thin layers and chrysophyte distributions determined for each layer. Changes in chrysophyte population distributions can then be used to predict changes in water chemistry over the same time period.

Results from this work have produced several new chrysophyte species for the Ocala lakes. Lake sediment samples have been catalogued and trends in bottom sediments verses time will be determined when funding becomes available.

The second study was a cooperative effort with Florida A & M University and the Forest Service. This study looked at the fate of sulfates from acidic atmospheric deposition in the poorly buffered soils of Bradwell Bay Wilderness on the Apalachicola NF. Results are reported in the final report submitted in 2002 to the Forest Service. Findings confirmed the three soils present in Bradwell Bay Wilderness – Leon, Rutlege, and Croatan, are strongly acid with pH values ranging from 2.9 to 4.6 and have no acid neutralizing capacity. Soils in Bradwell Bay Wilderness were found to be very well correlated with vegetation (Pine flatwoods with Leon soils, titi with Rutlege and Croatan soils, gum and cypress trees with Croatan muck). The Croatan soil has the highest organic matter content, field moisture and cation exchange capacity.

Due to the very acidic nature of these soils, the effects of acid precipitation and the fate of associated sulfates on the biology of Bradwell Bay Wilderness soils will have to be evaluated through further study including the effects of aluminum and calcium found in the system. This study may be continued when further funding becomes available.

Fecal coliform samples are collected at all developed swim sites during the summer swimming season on all three national forests. All swim sites monitored in 2004 met state standards for fecal coliform levels except for Salt Springs which failed one time. The follow up sample for Salt Springs passed. Swimming areas sampled for fecal bacteria on the Ocala NF are as follows: Mill Dam Lake, Fore Lake, Juniper Springs, Silver Glen Springs, Salt Springs, Alexander Springs, Clearwater Lake, Farles Prairie, Buck Lake, Wild Cat Lake, Lake Dorr, and Doe Lake. The highest readings obtained on the Ocala NF for 2004 were: Salt Springs 11,000 in September and Farles Lake 100 in June. The September sample for Salt Springs was re-sampled twice – both samples were less than 10. All other samples at swim sites had coliform counts of less than 100. Ocean Pond is the only swim site on the Osceola NF. Lost Lake on the Apalachicola NF, which had been maintained in the past as a developed swimming area, was closed to swimming again this year. Due to the small size of the lake and a tendency to fail the test for fecal coliform, it is not expected that Lost Lake will be

maintained in the future as a swimming site. The only swim sites on the Apalachicola NF are Silver Lake, Camel Lake, and Wright Lake. All these swim sites met state standards for swim beach monitoring throughout 2004.

Drinking water samples from recreation areas and administrative sites are sampled monthly for total coliform and yearly for nitrate levels. All sites monitored on the Apalachicola and Osceola NF passed all tests for potable waters in 2004. Several hand pumps at less developed recreation sites failed as follows: Farles Lake, November, June and August; Buck Lake, October November, March and September. All hand pumps were treated with chlorine and after testing negative for four follow up tests, were restored to use. Two additional follow up tests were then taken in the following quarter.

Although nitrate levels in ground waters are rising in many areas across the state, water samples tested on the National Forests in Florida continue to be at normal historic levels. This is likely due to the lack of development within aquifer recharge areas for Forest springs and ground waters. Nitrate levels for ground waters across the three forests are determined from water sampling at both potable well sites and state ambient ground water monitoring sites. The Florida State standard for nitrate in potable waters is 10 mg/l N. All potable and ground waters tested are below this limit.

Florida Springs Task Force has recently monitored all first magnitude springs as part of the Governor's initiative to protect and preserve Florida's springs. Both chemical and biological monitoring was done on first magnitude springs on the Ocala N.F. These data add to the information describing the health and condition of the ground water system supplying springs across Florida. Results are available in *Springs of Florida*, Florida Geological Survey Bulletin No. 66 which can be found at: www.dep.state.fl.us/geology/geologictopics/springs/bulletin66.

Many springs systems in Florida have recently experienced an increase in the amount of algae present in both the spring boils and spring runs. Although algae are normally found in these systems, the amount present has been increasing and is an issue of concern for many. Florida Department of Environmental Protection in cooperation with Michigan State University has begun a study of the springs in Florida to determine: 1.) nutrient and algal conditions, 2.) the relationships between nutrients and algae; and 3.) monitoring and management tools to protect and restore the springs. Results will be reported following publication of study results.

Evaluation: Results of the water quality studies utilizing chrysophyte samples initiated in FY 2000 and continuing in FY 2004 at Connecticut College in New London, Connecticut, will be evaluated as completed. Water quality at swim sites appears to be improving, possibly as a result of a return to more normal precipitation patterns. However, swim site failures have historically been attributed to contamination by swimmers, especially during high use days. This sampling can be very dependent on where and when samples are collected; especially during times when waters are warm and moving slowly or when large numbers of swimmers are present.

5-Year Trends: Most water bodies and aquatic systems on the Forest meet state water quality standards for swim beaches. Lost Lake on the Apalachicola NF continues to exhibit fecal

coliform counts; this trend is expected to continue and Lost Lake will most likely not be maintained as a swim site for the rest of the planning period. Algae amounts in springs are of growing concern, but until the results of the study being conducted by the DEP are known, no recommendations can be made.

Forest Plan Standards and Guidelines for air quality are found on page 3-25 of the Forest Plan and include standards and guidelines **WA-8** and **WA-9**.

1.21 Monitoring Question: Is air quality being maintained?

Item to Measure: Particulates, Ozone

Results: The Clean Air Act Amendments charge the NFs in FL with maintaining and improving air quality at the Bradwell Bay Class I wilderness area on the Apalachicola NF. Additionally, the NFs in FL are concerned with air quality for all NF lands, both from sources off of NF lands and from sources internal to the NFs. The primary source of FS generated emissions is the Forest's prescribed fire program.

Unlike most NF activities that are of concern to NF lands only, a discussion of air quality must include a consideration of surrounding lands. For purposes of this narrative, air quality information is considered for the entirety of counties where the NFs are located, as well as adjacent counties. It is necessary to include adjacent counties to get a more comprehensive look at air quality near NF lands. Similarly, air emissions resulting from Forest management activities will disperse and transport to neighboring counties.

Ambient Air monitoring Information: The two criteria pollutants of most interest for Forest managers are ozone and fine particulate matter. The Florida Department of Environmental Protection (FDEP) operates a network of air quality monitors state-wide, both for fine particulate matter ($PM_{2.5}$) and ozone. Air quality monitoring for particulate matter includes both fine and coarse particulates, although from a human health stand-point, fine particulates are of the most concern. The state-wide monitoring network is not distributed uniformly across the State and most monitors are concentrated near urban areas. The US Fish and Wildlife Service also operates an aerosol monitor (as part of the national visibility monitoring network, IMPROVE) at St. Marks National Wildlife Refuge. Data collected by IMPROVE provides information on the constituents of particulates in the atmosphere, as well as a measure of visibility.

National Ambient Air Quality Standards (NAAQS): There are NAAQS for six air pollutants, but in the eastern US, ozone and fine particulate cause the most concern. Each state maintains a monitoring network designed to track attainment of the ozone and fine particulate standards. Currently, Florida has no areas that fail to attain the NAAQS.

Fine Particulate Matter: Fine particulate matter is defined as airborne particles with diameters less than or equal to 2.5 microns, hence the acronym $PM_{2.5}$. These very small particles remain suspended in the air much longer (on average) than coarse (PM_{10}) particles and behave more like a regional pollutant such as ozone. Examination of 2003 aerosol monitoring data from St. Marks National Wildlife Refuge, located very near the Apalachicola National Forest and Bradwell Bay Wilderness, shows the contribution of various type of particulate to the overall mix of $PM_{2.5}$.

- Ammonium Sulfate 53%
- Organic Carbon 30%
- Soil 5%
- Ammonium Nitrate 5%
- Elemental Carbon 4%

Data source: http://vista.cira.colostate.edu/views/Web/AnnualSummary/Composition.aspx

There are two parts to the $PM_{2.5}$ particulate standard and attainment requires:

1. the 98th percentile of the distribution of the 24-hour concentrations for a period of 1 year, averaged over 3 years, not exceed 65 ug/m^3
2. the three-year average of the annual arithmetic mean of the 24-hour concentrations not exceed 15.0 ug/m^3

The following tables display fine particulate monitoring data for three years to assess trends. The first table lists the annual arithmetic means for each year; the EPA standard is 15 micrograms per cubic meter. (Monitoring locations reporting fine particulate concentrations higher than 15 would not meet the national standard, and would be designated nonattainment.) Monitoring results from sites near the Forest for 2004 show that annual fine particulates levels were generally 0.5 and 1.0 micrograms per cubic meter higher than in 2003. However, even considering this increase, none of these counties are in danger of exceeding the annual fine particulate standard.

Table 35. Fine Particulate ($PM_{2.5}$) Annual Standard

Apalachicola NF, Counties with $PM_{2.5}$ Mon5itors	Co. Adjacent To Natl. Forest Lands w/Monitors	**Annual Arithmetic Mean**		
		2004	**2003**	**2002**
Leon (urban)	---	13	12.7	12.9
Osceola NF, Counties with $PM_{2.5}$ Monitors				
---	Alachua (urban)	9.5	9.7	9.9
---	Duval (urban)	10.8	9.8	10.2
Ocala NF, Counties with $PM_{2.5}$ Monitors				
Marion (urban)	---	10.6	9.3	9.8
---	Alachua (urban)	9.5	9.7	9.9
---	Citrus (urban)	9.2	8.7	8.6
---	Orange (urban)	10.1	9.4	9.7
---	Seminole (rural)	9.8	8.6	8.9
---	Volusia (urban)	9.7	8.5	8.8

No FEDP $PM_{2.5}$ monitors in these counties with NF lands: Franklin, Liberty, Baker, Columbia, Lake, Wakulla, Putnam.
Annual NAAQS for $PM_{2.5}$ – 15 micrograms per cubic meter, using the 3-year average of the annual arithmetic mean.
$PM_{2.5}$ air quality monitors are owned and operated by the FDEP, in conjunction with the USEPA.
Rural/urban – refers to the general location of the monitor.
Data source - http://www.epa.gov/air/data/index.html

The following table shows the monitoring results compared to the 24-hour standard of 65 micrograms per cubic meter. Monitors near the Forest show that fine particulate levels are well below this standard at all sites. This is important considering the fact that the NFs in FL accomplished 158,488 acres of prescribed fire in 2004. Prescribed fires have relatively short durations, but can produce significant quantities of fine particulates which in turn could affect local monitoring results.

Table 36. Fine Particulate ($PM_{2.5}$) 24-Hour Standard

Apalachicola NF, Counties with $PM_{2.5}$ Monitors	Co. Adjacent To Natl. Forest Lands w/Monitors	**98th percentile of 24-hour concentrations**		
		2004	**2003**	**2002**
Leon (urban)	---	28	24	28
Osceola NF, Counties with $PM_{2.5}$ Monitors				
---	Alachua (urban)	20	19	25
---	Duval (urban)	26	21	25
Ocala NF, Counties with $PM_{2.5}$ Monitors				
Marion (urban)	---	25	18	25
---	Alachua (urban)	20	19	25
---	Citrus (urban)	25	19	29
---	Orange (urban)	21	19	22
---	Seminole (rural)	27	19	21
---	Volusia (urban)	22	18	22

No FEDP $PM_{2.5}$ monitors in these counties with NF lands: Franklin, Liberty, Baker, Columbia, Lake, Wakulla, Putnam.
24-Hour NAAQS for $PM_{2.5}$ – 65 micrograms per cubic meter, using a 3-year average of the 98th percentile concentration from each year.
$PM_{2.5}$ air quality monitors are owned and operated by the FDEP, in conjunction with the USEPA.
Rural/urban – refers to the general location of the monitor.
Data source - http://www.epa.gov/air/data/index.html

Monitoring Smoke from Prescribed Fires: In 2004 the Forest used portable monitoring equipment to measure fine particulate concentrations downwind of several prescribed fires during the month of January. The primary objective was to assess downwind impacts of smoke on air quality and to relate these measurements to commonly used indices of health effects. Prescribed fires are planned so that smoke will have minimal impact on smoke sensitive areas such as communities, hospitals, and schools. Smoke monitoring provides a way to document downwind impacts.

Ozone*:* Ozone is a secondary pollutant, formed many miles downwind of sources from precursor pollutants (nitrogen oxides and volatile organic compounds) that react in the presence of high air temperatures and sunlight to form ozone. Ozone affects the human respiratory system, and it also affects plants by damaging tissue.

The ozone standard is based on an 8-hour running average. Attainment requires that the 3-year average of each year's 4th highest daily maximum 8-hour average concentration not exceed 0.08 parts per million (ppm) [or 80 parts per billion, ppb]. Briefly, that means that 8-hour averages above 80 ppb are unhealthy for humans and vegetation alike. As with fine particulate matter, ozone monitoring is primarily conducted in urban and residential areas. Of the few rural monitors; two are located on or near national forest lands. One is at the Osceola National Forest Work Center in Baker County and the other is located in Wakulla County at St. Marks National Wildlife Refuge Work Center.

A review of data going back to 1998 indicates that ozone concentrations are decreasing at most monitoring sites near the Forest. This is consistent with recent air regulatory efforts focused on reducing ozone levels.

Table 37. Ozone Data: Three year averages for the 8 hour ozone standard, in parts per billion.

Appalachicola NF, Counties with Ozone Monitors	Co. Adjacent To NF lands w/Monitors	**2004-02**	**2003-01**	**2002-0(**	**2001-1999**	**2000-1998**
Leon (urban)	---	70	71	72	77	na
Wakulla (rural)	---	74	76	na	na	na
Osceola NF, Counties with Ozone Monitors						
Baker (rural)	---	71	71	72	75	77
Columbia (rural)	---	70	71	na	na	na
---	Alachua (urban)	72	72	75	78	84
---	Duval (urban)	70	68	69	74	77
Ocala NF, Counties with Ozone Monitors						
Marion (urban)	---	73	74	75	78	NA na
Lake (urban)	---	75	76	na	na	na
---	Alachua (urban)	72	72	75	78	84
---	Orange (urban)	75	76	78	81	84
---	Seminole (rural)	76	77	78	78	80
---	Volusia (urban)	76	70	72	74	77

No FDEP ozone monitors in these counties with National Forest lands: Franklin, Liberty, Putnam.
NAAQS for Ozone – 80 parts per billion, three-year average of the 4th highest maximum 8-hour average.
Ozone air quality monitors – owned and operated by the State of Florida, in conjunction with the USEPA.
Rural/urban – refers to the general location of the ozone monitor.
Data source: http://www.dep.state.fl.us/Air/flaqs/8HR_TrackingSheet.asp

Acid Deposition. The National Atmospheric Deposition Program (NADP) and the Clean Air Status and Trends Network (CASTNET) cooperate to monitor wet and dry forms of acidic deposition throughout the country. NADP operates about a dozen sites within or near Florida that allow them to draw isopleth/contour maps of wet deposition of acid anion pollutants (sulfate and nitrate) for the state (http://nadp.sws.uiuc.edu/). Monitoring data shows that deposition levels for Florida,

especially near the National Forests, are much lower than the rest of the eastern United States. CASTNET operates two sites in Florida that measure dry deposition of acid anion pollutants. Co-location of CASTNET and NADP sites allows these programs to estimate ratios of wet/dry deposition and wet/total deposition (http://www.epa.gov/castnet/). Dry deposition currently accounts for about 20 percent of total sulfur and 25 percent of total nitrogen deposition near the Forest. A review of the past 10 years of available data (1992 to 2002) indicate that sulfur deposition has fluctuated from a high of 7.5 kg/ha/yr to the current level of 5 kilograms/hectare/year (kg/ha/yr). Nitrogen deposition has decreased from a high of 5 kg/ha/yr to about 3.5 currently. It is believed that acid deposition rates are decreasing due to the final implementation of pollution controls by electric generation utilities, as required by the 1990 Clean Air Act Amendments Title IV (Acid Rain) program.

Mercury Deposition: The Mercury Deposition Network (http://nadp.sws.uiuc.edu/mdn/) operates as part of the National Atmospheric Deposition Program. National Forest management does not contribute to mercury deposition, however the detrimental effects of mercury deposition to freshwater fish species is noteworthy. Florida receives some of the highest mercury deposition in the country and monitoring indicates an increasing trend at Chassahowitzka National Wildlife Refuge, the MDN site closest to the Forest. Mercury deposition has increased from 13.6 micrograms per square meter (ug/m^2) per liter in 1999, to 19.3 ug/m^2 in 2003. Due to the atmospheric deposition of mercury Florida has a statewide freshwater fish consumption advisory in effect.

Evaluation: Ozone concentrations and sulfur and nitrogen deposition have declined over the past 5 to 10 years. Data from the Mercury Deposition Network shows a steady increase over the past five years. Since air quality in the vicinity of the Forests remain within National and State standards, there are no recommendations for changes in the Forest Plan or monitoring items.

5-Year Trends: The Monitoring and Evaluation Reports document the trends in increasing mercury and decreasing ozone concentrations and sulfur and nitrogen deposition, but these trends do not necessitate a change in management strategy. Despite increases in monitored fine particulates, air quality in the vicinity of the Forest remains within National/State air quality standards for fine particulate.

Forest Plan Standards and Guidelines for fishery resources are found on pages 3-31 through 3-32 of the Forest Plan and include standard and guideline **WL-21.**

1.22 Monitoring Question: Which water bodies were fertilized?

Item to Measure: Report which water bodies were fertilized

Results: Borrow Pits continued to be managed for fisheries on the Apalachicola and Osceola National Forests. Water levels remain very low in both manmade and natural water bodies, precluding fertilization. None of these water bodies have been fertilized since FY2000.

Evaluation: Because of the drought and low water levels, not being able to fertilize these water bodies has not been an issue for the forest.

5-Year Trends: Other than the unusually dry conditions, there are no trends to report and no recommendations for action.

Forest Plan Standards and Guidelines for tree regeneration and site preparation are found on pages 3-20 of the Forest Plan and include standards and guidelines **VG-17** through **VG-19.**

1.23 Monitoring Question: Has soil disturbance been minimized in preparing longleaf and slash pine sites for tree regeneration?

Item to Measure: Percent of the area treated with soil displacement

Results : 109 acres were roller drum chopped on the Osceola National Forest and 84 acres were chopped on the Ocala National Forest in FY 2004. Estimated soil displacement was 12% on the Osceola and less than 3% on the Ocala.

Evaluation: Single pass roller drum chopping in palmetto-gallberry understory types for site preparation appears to result in minimum soil disturbance.

5-Year Trends: Data reported over the last 5 years show a decrease in both the number of acres roller-chopped and the percent of soil disturbance in the areas roller-chopped. The Forest is achieving this objective.

Forest Plan Standards and Guidelines for Range are found on pages 3-14 and 4-41 of the Forest Plan and include standards and guidelines **RA-1,** and **7.2-1** through **7.2-5.**

1.24 Monitoring Question: What are the effects of cattle grazing on vegetation?

Item to Measure: Biotic index along a transect, include a transect across fence lines

Results: During FY04 only two of the four allotments on the Apalachicola NF remained active, with only one (Deer Hunt) having cows on it, with a density of well under one cow per 50 acres. The other remaining active allotment, Briar Patch, will be advertised in FY2005. The other two allotments, Gregory Mill and West Prong, have been officially closed. The one allotment on the Osceola NF has been officially closed.

Evaluation: Field observations indicate the low density of cows on the Apalachicola allotment does not significantly alter the vegetative composition of the range allotment. Past monitoring showed no tendency of cattle to graze on the T&E plants. Feeding and watering structures are positioned in areas where T&E plants do not occur. Since burning for forage production is required in active allotments, threatened, endangered and sensitive plant habitat in active allotments is generally of higher quality than on the forest in general. Regular burning will continue on active allotments, with a continued trend of high quality T&E plant species habitat expected over the rest of the life of the Forest Plan. No recommendations for change.

5-Year Trends: Due to the limited amount of grazing and continued reduction in active allotments, there are no measurable trends in the effect of cattle grazing on vegetation.

Sustainable Multiple Forest and Range Benefits

Forest Plan Goal:

- Provide a wide range of accessible recreation opportunities to accommodate the varied ability levels of forest visitors.

Forest Plan Objective:

- Make at least 20 percent of the developed site (level 3 and above) recreation opportunities universally accessible. Provide fully accessible opportunities on at least one swimming area, one hiking trail, and one fishing pier/boating site per forest. The long-term objective is to make all developed sites universally accessible.

2.1 Monitoring Question: What percent of each type of recreation site (at least 1 swimming, 1 hiking, 1 fishing) is accessible? (Level 3 and above)

Item to Measure: Percent of accessible by type of recreation site

Results: Table 37 shows the percent of areas meeting ADA standards. There are 35 developed sites level 3 and above, and one level 2 boat-ramp/fishing pier, where this objective applies. This table shows the sites that meet some level of accessibility standards.

Table 38. Recreation Sites Meeting ADA Standards.

Percent of Recreation Sites Meeting ADA Standards	
Location	**Recreation Site**
Apalachicola National Forest	Leon Sinks Trail Head – 100% (hiking trail – 20%)
	Silver Lake Day Use (picnic and swim) – 75%
	Wright Lake Campground – 50%
	Hickory Landing Campground– 25%
	Whitehead Landing Campground – 25%
	Fort Gadsden Historic Site – 25%
	Mack Landing Campground – 25%
	Camel Lake Campground – 75%
Ocala National Forest	Juniper Springs Recreation Area – 25%
	Salt Springs Recreation Area – 75%
	Silver Glen Springs Day Use – 25%
	Fore Lake Recreation Area – 25%
	Mill Dam Day Use (picnic and swim) – 25%
	Alexander Springs Recreation Area – 50%
	Doe Lake Group Camp – 50%
	Lake Dorr Cabin – 100%
	Wildcat Lake Day Use – 25%
	Lake Delancy East Campground– 25%
	Lake Delancy West Campground – 25%
	Buck Lake Campground – 25%

	Hopkins Prairie Campground – 25%
	Juniper Wayside Day-use – 50%
	Lake Dorr South Boatramp and Fishing Pier – 75%
	Clearwater Lake Campground –0%
	Big Scrub Campground –0%
	Big Bass Campground –0%
	River Forest Group Campground –0%
	Lake Shore Group Camp –50%
	Sweetwater Cabin –0%
	Lake Eaton Campground –25%
	Lake Dorr Campground –0%
Osceola National Forest	Olustee Beach Day Use (picnic and swim) – 75%
	Ocean Pond Campground – 75%
	Olustee Depot VIC – 100%
	The Landing Group Camp – 75%
	Olustee Battlefield – Niswander Hiking Trail – 100%

Evaluation: Six of the 35 developed campgrounds do not meet this objective. Efforts are underway to achieve 20% accessibility at all level 3 sites. The Forest is expected to continue to reduce the Recreation Building Deferred Maintenance Backlog by successfully competing for regional deferred maintenance and capital investment funding, primarily to replace old and inaccessible bathhouses and toilets with new buildings that meet accessibility guidelines. In the past five years, the Apalachicola NF has replaced 1 bathhouse, 1 flush toilet, and 5 sweet-smelling toilets (SSTs). The Ocala NF has replaced 2 concession buildings, 5 bathhouses, 1 flush toilet, 2 entrance stations, and 7 SSTs. The Osceola NF has replaced 2 bathhouses, 1 flush toilet, and an entrance station.

5-Year Trends: No trend is identified. With only 6 of the 35 sites not meeting this objective it is anticipated that this can be met by the end of the planning period.

Forest Plan Goal:

- Provide safe and enjoyable visitor opportunities at developed recreation areas by maintaining, retrofitting, or replacing recreation facilities or upgrading amenities.

Forest Plan Objective:

- Upgrade, refurbish, or replace four recreation facilities per year.

2.2 Monitoring Question: Are developed recreation facilities providing Meaningful Measures (MM) standard for safety, cleanliness, and service? Do they reflect quality and customer service?

Item to Measure: Evaluations of each facility component are defined by Meaningful Measures standards and customer survey forms

Results: For FY 2004, the continuing evaluation of sites where use was too low to justify the retention of these areas on the Forest Fee Demo Program resulted in the fee being eliminated at Grassy Pond Campground and Mason Bay Hunt Camp on the Ocala National Forest.

Meaningful Measures also describes standards to provide a desired quality experience and customer service. Areas that were being reconstructed in FY 2004, and will meet all applicable Meaningful Measures quality standards when completed are: Camel Lake Campground on the Apalachicola NF, and the Alexander Springs Day-use Area on the Ocala NF. Recreation areas managed by the Ocala Recreation Complex special use permit (concessionaire) are expected to meet all applicable Meaningful Measures standards for quality of experience and customer service.

During FY 2004, Fee Demo revenues have been used to repair, replace and augment facilities, especially picnic tables and garbage containers, at numerous recreation areas thus enhancing the quality of experience and customer service provided. This continues a trend of replacement of recreation minor facilities that has occurred since the Forest initiated a Fee Demo Program in 1996, and has been able to retain 80% of fees collected for facility maintenance and replacement, and enhancement of developed recreation areas. The first round (5-year cycle) of facility condition inspections of developed recreation areas were completed for the NFs in Florida in FY 2002 so none were conducted in FY 2003, but the inspection cycle resumed in FY 2004 with inspections completed on the Apalachicola NF.

Evaluation: In general, the lower level (amenity level 2 and below) areas attain approximately 50% to 75% of applicable Meaningful Measures standards for quality experience and customer service, whereas areas at level 3 or higher attain from 75% to 100% of these standards. Recommended actions include removal from the Fee Demo program of other areas showing very low use, and either closure of these areas or curtailment of services and/or facilities.

5-Year Trends: The Forest has upgraded, refurbished, or replaced at least four recreation facilities per year.

Forest Plan Goal:

- Provide a system of marked recreational trails and support facilities that will promote a variety of experiences for both motorized and nonmotorized trail users.

2.3 Monitoring Question: What system of trails has been designated on the ground, and are they maintained at appropriate level?

Item to Measure: Miles of trails, by type and condition

Results: The following table displays the trail system for the National Forests in Florida by mileage and type. Inspections on the Apalachicola NF, Ocala NF, and the Osceola NF have confirmed that all trails are being maintained at the 75% to 100% level of all applicable Meaningful Measures standards for quality of experience and customer service.

Table 39. Miles of Trail by Type

Forest	Type of Trail	Mileage
Apalachicola	Hiking	92.0*
	Horse Trail	29.0
	Off–Road Bicycle	10.0
Ocala	Hiking	111.0*
	Horse Trail	134.0
	Off-Road Bicycle	22.0
Osceola	Hiking	26.4*
	Horse Trail	53.0

*includes 36.5 miles of hiking trails in wilderness.

Evaluation: Recommended actions are to relocate some trails out of wet and eroding areas and off of roads also used by motorized vehicles, and also to construct additional footbridges and boardwalks on selected trail segments, for greater degree of attainment of Meaningful Measures standards. Monitoring data indicates all trails are being maintained at the 75% to 100% level of all applicable Meaningful Measures standards for quality of experience and customer service. Relocating trails off of wetland soils and the use of footbridges and boardwalks will help the Forest achieve 100% attainment of Meaningful Measures standards.

5-Year Trends: Data indicate this goal is being attained.

Forest Plan Objective:

- Establish and certify for public use the remaining 750 miles of the Florida National Scenic Trail needed to complete a continuous trail from Big Cypress National Preserve to Gulf Islands National Seashore.

2.4 Monitoring Question: How many miles of Florida National Scenic Trail have been certified for public use?

Item to Measure: Miles of Florida National Scenic Trail certified

Results:

Approximately 826 miles (60 percent) of the planned 1,400-mile long trail have been certified and opened for public use as FNST. It is estimated that an additional 150 miles of trail can be constructed and/or certified on existing public land. The remaining 425 miles requires acquisition to secure a route for public use. In 2004, the USDA Forest Service certified 114 miles of trail as Florida National Scenic Trail including some of the oldest sections of the Florida Trail in state parks and forests. 75 miles of trail were certified as FNST side trail, 14 miles as FNST connector trail, and 58 miles of existing FNST were recertified. Also in the past year, the inventory and assessment of the existing FNST was completed.

The Florida Trail Association's volunteers donated 59,400 hours to build and maintain the FNST in the past year. In 2004, the Florida Trail Association's volunteer trail crews constructed or reconstructed 11.5 miles of FNST, and built 26 short-span minor bridges and 9,570 feet of boardwalks. FTA coordinated FNST assessment, reconstruction and restoration activities resulting from four hurricanes and one tropical storm that flooded and toppled trees across the trail throughout Florida. Between October 1 and December 14, 2004, over 850 miles of trail in 12 public land management areas were assessed and cleared of storm damage by FTA volunteers, USFS crews and local land managers. Trail construction, improvement and restoration projects were focused in Apalachicola National Forest; Osceola National Forest; Ocala National Forest; Big Cypress National Preserve; Eglin Air Force Base; Cross Florida Greenway; St. Marks National Wildlife Refuge; Bull Creek WMA; Aucilla WMA; Blackwater River State Forest; Little Big Econ State Forest; Seminole State Forest; Bluff Hammock Conservation Area; Econfina Creek WMA; Three Lakes WMA; and Rice Creek Conservation Area.

The FTA and the National Forests in Florida initiated a comprehensive trail construction safety program including the creation of a FTA Trail Maintenance and Construction Manual, based on the USDA Forest Service Health and Safety Code Handbook, and a new Job Hazards Analysis for FNST Trail Maintenance and Construction. FTA coordinated the offering of five training sessions where 60 volunteers and staff were certified to USDA Forest Service standards for chainsaw operation on the trail. The FTA purchased and distributed personal protective gear, including helmets, safety glasses, safety gloves, safety vests, and ear protection to 300 volunteers and staff.

To date, the FNST Land Acquisition Program has successfully negotiated and acquired 1027 acres of land in 12 tracts protecting 6.1 miles of trail. Expenditure for these land purchases totaled $5,661,650. Currently, there are 170 acquisition projects in the acquisition program which will help narrow gaps between public lands and add or create usable and significant trail segments. Forty (40) of these projects are in active negotiation, 65 projects are in the initial contact stage of acquisition, and 65 additional projects are being further researched for acquisition. The National Park Service's Trail Center is handling 98 of these projects which will protect over 40 miles of the FNST through acquisition of over 7,000 acres at an expenditure of over $10,000,000. It is estimated that $100 million will be needed over a ten-year period to complete the trail. To date, Congress has appropriated $17 million to the USDA Forest Service to acquire land for the FNST, of which $1.4 million was recently reallocated by the Forest Service in response to FY05 appropriations directives.

Evaluation: Progress on certifying the trail is proceeding well within the projected amount needed to accomplish the objective. The challenge cost share agreement between the National Forests in Florida and the Florida Trail Association should be continued in order to place emphasis on building trail, certifying sections, and acquiring land for the trail.

5-Year Trends: The total projected mileage of the FNST was revised using GIS analysis to get a more accurate mileage figure. The total mileage of the FNST will be 1400 miles long and not the 1300 miles estimated 20 years ago when the Comprehensive Plan for the FNST was written. At this halfway point of the Forest Plan, there are 574 miles remaining to certify of

the 750 miles listed in Forest Objective #14. In addition, the acres of land acquired for the FNST need to be allocated to a Management Area in the Plan.

Forest Plan Goal:

- Protect rivers and preserve their cultural/historical, ecological, fish and wildlife, recreational, geological, or scenic values.

2.5 Monitoring Question: Have rivers been recommended as wild and scenic, and what is their status?

Item to Measure: Status of Record of Decision/Legislative EIS

Results: Although we are halfway through the planning cycle, rivers have not been recommended, and a Legislative EIS has not been completed. Management of the river corridors continues to be based on their ongoing status as proposed wild and scenic rivers.

Evaluation: Direction from the Washington Office and Region Offices continues to be on ensuring there is strong local support for river designation, and that forests should not move forward with a Legislative EIS for river or wilderness recommendation unless there is support for it from the state's congressional delegation and a commitment to introduce a bill into Congress.

5-Year Trends: It has been 5 years since the recommendation for designating these rivers was put forth in the Forest Plan. The political climate in Florida offers no commitment or support to carry river designation forward at this time.

Forest Plan Goal:

- Increase public awareness of wilderness values. Protect and enhance resources, quality, and wilderness character of designated wilderness areas.

2.6 Monitoring Question: Have wilderness opportunities been increased and has Clear Lake been recommended for wilderness status?

Item to Measure: Status of Record of Decision/Legislative EIS

Results: At this halfway point in the Revised Forest Plan, Clear Lake has yet to be recommended for wilderness designation. The area continues to be managed as a Wilderness Study Area to protect wilderness values.

Evaluation: Legislative EISs for wilderness designation do not go forward unless there is support for it from the state's congressional delegation and a commitment to introduce a bill into Congress. The Forest must continue to work with Florida's congressional delegation to gain support to draft and introduce new wilderness legislation for Florida.

5-Year Trends: It has been 5 years since the recommendation for designating Clear Lake as wilderness was put forth in the Forest Plan. The political climate in Florida offers no commitment or support to offer a bill for wilderness designation at this time.

2.7 Monitoring Question: Has wilderness character been protected?

Item to Measure: Percent of land in primitive and semi-primitive Recreation Opportunity Spectrum classes, trail-use data; Ecosystem plots

Results: New ecosystem plots were not established in wilderness area in 2004, either in conjunction with the FNAI vegetation monitoring plots or as a separate monitoring effort. The Monitoring Task Sheet for measuring protection of the wilderness character states this will be reported at 5-year intervals, but since the records of wilderness ecosystem plots were lost there is no data to report. Continuing threats to wilderness character include military overflights on the Ocala and Apalachicola National Forests, motorized incursions into wilderness by OHVs and ATVs, the boat dock structure at Juniper Prairie Wilderness, the inholding in Juniper Prairie Wilderness, and the old CCC bridge in the Mud Swamp/New River Wilderness. The percentage of lands within the primitive and semi-primitive Recreation Opportunity Spectrum classes remains unchanged.

Evaluation: The forest wilderness specialist will need to work with the forest botanist and district biologists to establish and measure ecosystem/vegetation plots in wilderness. New plots will be established in 2006, and data recorded. The next measurement of these plots will be in 2008, and at that time some information on trends in vegetation species composition and richness might be drawn.

5-Year Trends: No trends to report.

2.8 Monitoring Question: Has Natural Area wilderness study area been recommended for release?

Item to Measure: Status of Record of Decision/Legislative EIS

Results: Natural Area Wilderness Study Area has not been recommended for release.

Evaluation: Actions on this should be combined with legislative actions on wilderness and wild and scenic rivers designation, since only Congress can release an area from Wilderness Study Area status. Until that time the area will continue to be managed as a Wilderness Study Area. At present, there is no support from Florida's congressional delegation to move forward on a legislative EIS. The Forest must continue to work with Florida's congressional delegation to gain support to draft and introduce new wilderness legislation for Florida that will include release language for Natural Area WSA. It has been 5 years since the recommendation to release Natural Area from its wilderness study area status was put forth in the Forest Plan. The most likely avenue to pursue release would be to include release language for Natural Area WSA in wilderness legislation for Florida. The political climate in Florida offers no commitment or support to offer a bill for wilderness designation at this time.

5-Year Trends: No change in status.

Forest Plan Objective:

- Designated a system of trails and roads in areas where motorized vehicles and bicycles are restricted (*see* Access Maps, Appendix A). This process will incorporate existing travelways as much as possible and include public participation and collaboration with local user groups.

2.9 Monitoring Question: Is the access policy having the desired effect of protecting the resources?

Item to Measure: Photo points at areas of resource concern

Results: Only the Osceola National Forest completed it's designation plan in FY2004 and had just begun its implementation phase at the very end of FY2004. Access designation for the Restricted Areas of the Ocala NF and Apalachicola NF should be completed in FY 05-06, as well as implementation of an OHV monitoring program.

Evaluation: At the end of FY2004, the Ocala National Forest released a Draft EIS for its access designation. Incorporation of public comments and the production of a Final EIS should occur in spring 2005, including a monitoring plan identifying photo points. For the Apalachicola, contracts for archeological surveys of unclassified road segments being proposed for designation were underway.

At the halfway point of the Forest Plan, the Forests stand poised to implement a system of designated OHV roads and trails in the Restricted Areas on the Osceola and Ocala National Forests, with the Apalachicola NF to follow within a year. This will mark a significant change in motorized recreation patterns on the forest. OHV monitoring over the second half of the life the Forest Plan will indicate whether the designated OHV system is successful in reducing fragmentation and impacts to resources.

When the Forest Plan was approved in 1999, there were no plans to extend the Access Designation Process into the unrestricted parts of the forests. This change in direction would include a Forest Plan amendment to update the direction for access management outside the restricted area. The amendment would most likely be incorporated within the project decision.

Implementation of temporary closures on the Ocala NF and the Apalachicola NF have helped to reduce some of the impacts on those forests until the designation process is completed

5-Year Trends: Since full implementation has yet to occur, there are no trends to report.

Forest Plan Goal:

- Preserve significant heritage resources as remnants of our cultural heritage by locating, evaluating, and protecting heritage resource sites.

Forest Plan Objective:

- Evaluate for significance five archeological sites each year.

2.10 Monitoring Question: Are heritage resource sites being evaluated and protected?

Item to Measure: Number sites evaluated; Annual report on protection efforts

Results: Archeological survey of about 237 miles of proposed access designation routes in all three National Forests in addition to usual annual inventory work resulted in only one site being evaluated in FY2004. However, dozens of archeological sites were protected by closing or re-routing travel ways after field survey identified sensitive areas. Other factors that unexpectedly increased archeological inventory demands were proposed timber salvage associated with the Impassable Bay Fire in the Osceola NF and four hurricanes that caused damage on all three forests. Atypically, some compliance work for proposed construction of fire lines, designating access routes and wildfire timber salvage was accomplished through contracts that required staff time for preparing and administering contracts. One temporary special use permit under the authority of the Archeological Resources Protection Act was administered during FY2004. Protection of sites was incorporated in the Rx310 Fire Effects class at the Interagency Prescribed Fire Training Center. Presentations by staff archeologists at local elementary schools help ensure long-range protection of archeological sites by exposing children to preservation ethics and values at an impressionable age.

Evaluation: Site protection measures were within the Forest Plan objective for FY 2004. The objective to evaluate five archeological sites in FY2004 was not met. Although there have been isolated incidents in the last five years where miscommunication has resulted in adverse effects to archeological sites such as plowing fire lines in sites designated for avoidance, overall there seems to be a trend of increased communication to protect archeological sites during project implementation.

There is an increasing demand for Special Use Permits (SUPs) on the forests for recreation, research and other activities that require archeological survey compliance work. Members of the public typically propose SUPs with very little time allowed for planning or compliance purposes. Since there is usually little to no advance notice, work required for SUPs are not incorporated within work plans, is not funded and is disruptive to accomplishing work that is planned and funded. Associated with this increasing demand for SUPs is an increase in the variety, intensity and repetitiveness of recreation activities having potential effects upon archeological sites. Examples include paint ball enthusiasts constructing an obstacle course on an historic archeological site, hunters plowing roads to enhance hunting opportunities, and motorcycle and ATV riders using an historic railroad tram as challenging ramp. OHV damage, almost non-existent 10 years ago, is increasing at a pace and scale that is difficult to monitor and mitigate efficiently enough to protect archeological sites. Some individuals have ended destructive actions due to increased education and patrols while some have clearly demonstrated total disregard by out-running law enforcement.

Public education efforts have been ineffective in protecting sites from increased effects of uncontrolled recreation. It is possible that the Access Designation Process that is now being put in place on the forest (both in the restricted areas and the unrestricted areas) will help in protecting these sites by restricting vehicles to designated roads and trails; monitoring of the effectiveness of designating OHV routes and areas should correlate to a decrease in impacts on cultural sites over the next five years of the Forest Plan. More emphasis is needed in law enforcement and educating judges and magistrates on the impact of these activities on cultural resources so that the punishment and fines they impose are commensurate with resource damage costs.

5-Year Trends: The annual number of sites evaluated for significance has consistently been below the Forest Plan objective.

Forest Plan Goal:

- Protect, enhance, and, where necessary, restore the forests' scenic resource values.

Forest Plan Objective:

- Complete the inventory of existing scenic conditions and proposed scenic classes and implement updated Scenery Management System.

2.11 Monitoring Question: Are the scenic resources being protected, enhanced, and where necessary, restored?

Item to Measure: Implementation of the Scenery Management System (SMS) and management of scenery according to the recommendations of the SMS

Results: This objective was to be accomplished by June, 2002. Currently, the 2380 section of the Forest Service Manual has been revised to provide direction for implementation of the SMS, and national SMS Training Modules are being developed (projected to be available in FY 2005 or FY 2006) to provide orientation level, working level, and technical level knowledge. Until forest personnel have received training in SMS, the visual management system (VMS) is still in place. Forest landscape architects attended SMS training at the Eastern and Southern Regional University held in Cincinnati in March 2003. This was the first SMS training conducted in the Southern Region since 1995. Technologies (ArcGIS) were presented at the ESRU that should enable Forest landscape architects to complete the SMS analysis and mapping in FY 2005 or FY 2006. It is also anticipated that SMS training modules will be available for Forest Orientation and Implementation training to be conducted on the Forest in FY 2005 or FY 2006. The inability of the Forest to implement the SMS by the target date of June 2002 is directly attributable to the lateness of the availability of regional and national direction on the methodology and technology to be employed. There is also a lack of a high priority perceived need for implementation of the SMS, since Forest landscape architects are also involved in other higher priority Forest projects, and the VRM seems to be working adequately for current visual/scenic resource needs.

Evaluation: Although there are significant differences between the new SMS and the old VMS, there are also many aspects of the two systems that are similar and consistent. For instance, some new mapping and field ground truthing will be necessary, but much of the mapping and other inventorying done previously for the VMS will be able to be verified and used within the SMS with only minor modifications. Likewise, many of the mitigation measures described for the VMS are also valid for the SMS. Therefore, it is considered appropriate and adequate that the previous VMS direction for coordination with other resources be continued within the LMP until the SMS is fully implemented. Within the next year, Forest SMS program managers will continue verifying and updating the old VMS inventories (primarily within the GIS), and defining SMS management direction as part of Forest-wide direction and management area direction, if applicable, to be included in the next update of the LMP. It is expected that the conversion to the new SMS system will occur in the

second half of the Forest Plan lifecycle. No project related deviations from VMS guidelines have been identified at this time.

5-Year Trends: Protection of scenic resources is stable

Forest Plan Goal:

- Interpret forest attributes such as scenic byways, cultural sites, and special areas. Interpret forest management practices, emphasizing how sand pine clearcutting and prescribed fire improve ecosystem functions.

2.12 Monitoring Question: Do forest visitors understand Forest Service practices and do they value and respect the resource being interpreted?

Item to Measure: Number of opportunities and facilities (signs, talks, brochures) per district and quality

Results: The Apalachicola National Forest provided 9 interpretive/educational programs in FY04. The Osceola provided 25 interpretive/educational programs and the Ocala provided 60 interpretive programs in FY04.

Apalachicola National Forest programs included:

Apalachicola presented two wildlife programs to a diverse audience of twenty people. The Forest also presented two Leave No Trace programs to an audience of twenty forest users and an additional five Tread Lightly programs to FSU students and other forest users to a total of fifty people. The Forest also designed and printed five new brochures for recreation areas including: Leon Sinks, Fort Gadsden, Vinzant Riding Trail, Silver Lake and Munson Hills Off-Road Bicycle Trail.

Osceola National Forest programs included:

Event: Baker County Fair 10/1-4
Audience: Thousands of participants
Program: General Forest information and prevention

Event: Columbia High School Home Coming Parade 10/3
Audience: Thousands of participants
Program: Prevention

Event: Columbia County Fair 10/5-9
Audience: Thousands of participants
Program: General Forest information and prevention

Event: Smokey at Suwannee Head Start 10/15
Audience: 120 preschoolers
Program: Prevention

Event: Columbia County Sheriff's Barn Dance 10/18

Audience: Hundreds
Program: General Forest information and prevention

Event: Project Learning Tree, Lake Butler 10/20
Audience: 50 Teachers
Program: Environmental education

Event: Smokey at Westside Elementary 10/24
Audience: All 1st Graders (200)
Program: Prevention

Event: Smokey at Wal Mart, Lake City 10/25
Audience: Hundreds of participants
Program: Prevention

Event: Baker County High School Alternative Class 11/6
Audience: 50 students 9 – 12 grade
Program: Environmental Education (Forestry)

Event: Project REACH, Westside Elementary 11/13
Audience: 60 2nd graders
Program: General Forest information and careers

Event: Farm City Days, Lake Butler 11/18
Audience: All 5th graders (200)
Program: General Forestry and conservation

Event: Lake City Christmas Parade 12/1
Audience: Thousands
Program: Prevention

Event: Baker County Christmas Parade 12/6
Audience: Thousands
Program: Prevention

Event: Florida State Still Hunters Meeting 1/27 and 3/30
Audience: 15 Adults
Program: General Forest information and access

Event: Olustee Battle Reenactment 2/1-15
Audience: Approximately 25,000
Program: Cultural resource interpretation

Event: University of Florida Park Management Class 3/25
Audience: University students (30)
Program: Recreation and Parks Management

Event: Baker County YMCA Healthy Kids Day 4/3
Audience: Hundreds
Program: General Forest information and prevention

Event: Forest clean-up 5/1
Audience: 50
Program: Litter awareness

Event: Kids Fishing Derby 6/5
Audience: 75 kids and parents
Program: Environmental Education

Event: Campfire USA 6/15
Audience: 12 students and 3 adults
Program: Natural resource related careers

Event: DOF Teachers Tour 6/16
Audience: 25 teachers
Program: General Forest management information

Event: Smokey at Columbia Library 6/17
Audience: 60 children
Program: Prevention

Event: Environmental Adventures 4-H Program 7/1
Audience: 40 children (11 – 15 years old)
Program: Environmental Education

Event: Motorcycle Riders Tour 7/10
Audience: 100 riders
Program: General Forest information

Event: Civil War Expo 8/14
Audience: 250 adults and children
Program: Cultural Resource Interpretation

The Ocala National Forest programs include:

Table 40. Lake George Ranger District:

Date	Place	Audience	Type of Program	Number of People
4/04	Silver Springs	Elementary students	Earth Day	2,000
4/04	Lake Eaton	5-12 yr olds	Fishing Derby	300
4/04	Child Development Center	All ages	Smokey Appearance	100
5/04	Silver Springs	All ages	Bear Day	500-600
6/04	Home Depot	All ages	Kids Day/Smokey Appearance`	200
6/04	Daytona Speedway	All ages	Fire Prevention	800
8/04	Silver Springs Park	All ages	Springs Festival/Smokey appearance	1,500-2,000
9/04	Juniper Springs	All ages	Springs Festival/Smokey appearance	1,000
11/04	Blessed Trinity Catholic Church	All ages	Carnival/Smokey appearance	2,500-3,000
11/04	United Methodist Church	All ages	Smokey appearance	50
2/05	Fort McCoy Elementary School	Kindergarten	Smokey appearance	20
2/05	Yearling Trail/Pats Island	All ages	Interpretive Talk	20
4/05	Yearling Trail/Pats Island	School Teachers	Interpretive Talk	45

Seminole Ranger District:

Table 41. Wildlife Education Programs FY-2004

Event	Audience	est. #	Program
Florida Black Bear Festival	Adults & kids	550	Safe Camping in Bear Country
Florida Black Bear Festival	Adults & kids	50	Field trip exploring bear ecology
Florida Black Bear Festival	Adults & kids	50	Field trip exploring bear ecology
Florida Black Bear Festival	Adults & kids	50	Field trip exploring bear ecology
Florida Black Bear Festival	Adults & kids	50	Field trip exploring bear ecology
Florida Black Bear Festival	Adults & kids	50	Field trip exploring bear ecology
Florida Black Bear Festival	Adults & kids	50	Field trip exploring bear ecology
Seminole Springs Elementary	2 adults, 60 kids	62	Bear track plaster casts
Sierra Club	Adults	20	Red-cockaded woodpecker and sandhill ecosystem
Natural Resources Leadership Institute	Adults	30	Impacts of recreation on wildlife
Florida Black Bear School Days	4th graders	240 kids, 35 adults	Ecology, biology of Florida black bear and safety
Elderhostel	Adults	20	Birds of central Florida
Elderhostel	Adults	20	Florida scrub-jay
Elderhostel	Adults	20	Sand pine scrub ecosystem
Umatilla Elementary	Children	45	Blue birds and building nest boxes
Florida A & M University	College students & professor	6	Overview of Forest Service wildlife & forest mgt
Umatilla Elementary	Children	120	Ecology, biology of Florida black bear and safety
Alee Academy	Upper division students	20	Bluebirds and installing nest boxes on USFS land
Univ. Florida	College students	50	Air potato eradication
Miami-Dade school system	Students 6-12 grade	100	Careers in USFS
Fishing Derby	Children 6-16, and parents	60 kids, 20 adults	Fishing and fish identification

Table 42. Miscellaneous Interpretive/Educational Programs FY 2004

Date	Event	# of people	Type program
10-4-03	Bear Festival	50	Bus tour

Date	Event	# of people	Type program
11-8-03	FAMU students	10	Talk/field trip on silviculture
11-15-03	Tiger Growl – BSA event	100	Camping in Bear Country demo/activity
11-22-03	Tiger Growl – BSA event	100	Camping in Bear Country demo/activity
1-17-04	Boy Scout Volunteer Planting Day	100	Forestry merit badge
2-17-04	Elderhostel	25	Interpretive talk/hike
3-27-04	Boy Scout Leader training	10	Teaching the Forestry & Naturalist badge
6-8-04	Kid's College *	25	Tree identification activity
6-22-04	Kid's College *	25	Tree identification activity
6-30-04	International Agro forestry Conference	75	Field trip stop
7-8-04	Kid's College *	25	Forest Service career talk
7-26-04	Kid's College *	25	Forest Service career talk

Table 43. Fire Prevention& Education/ Interpretive Programs

DATE	PLACE	AUDIENCE	TYPE OF PROGRAM	NUMBER OF PEOPLE
10/4/03	Umatilla Black Bear Festival	All ages	Smokey and fire prevention	850
10/7/03	Spring Creek Elementary	Kindergarten	Smokey and fire prevention	100
10/9/03	Umatilla Elementary	Kindergarten and first grades	Smokey and fire prevention	260
01/26/2004	Blue Lake Academy	Pre- School	Smokey and fire prevention	85
1/17/04	Astor Area	Boy Scout tree planting day	Presentation on wildfire vs. px-fire	40
3/29/04	Deerhaven Community	Community members	Firewise your home and community	15
4/17/04	Umatilla Elem	Children K-5th	Smokey	65
6/15/04	Kids College @ LSCC	Children 12-14	Fire ecology	27
6/19/04	Kids College @ LSCC	Children 12-14	Fire ecology	27
7/16/04	Treadway Elem. Summer program	Children K-5th	Smokey/fire prevention	60
7/27/04	Clermont @ LSCC	Children ages 10-14	Fire ecology, fire in Fl ecosystems	27

DATE	PLACE	AUDIENCE	TYPE OF PROGRAM	NUMBER OF PEOPLE
8/28/04	Lake Co. Expo @Lake Reception	Children 12 and under	Smokey/fire prevention	36
9/22/04	Christian Academy	K & 1st	Smokey/fire prevention	110
No Date	Seminole Springs Elementary	Pre-K	Archeology Show and Tell	35

Evaluation: The interpretive program in FY2004 fulfilled the goal as stated in the Forest Plan. As noted in the previous year's M&E Report, the items measured may not fully answer the monitoring question as far as understanding and values. Either the monitoring question or the items measured may need to be reviewed.

With the implementation of the Access Designation Process in the Restricted Areas, and the forest embarking on Access Designation in the Unrestricted parts of the forests over the second half of the Forest Plan's lifespan, more education and interpretation efforts will need to be focused on the change to a designated OHV system. The forest also note's the recommendation of the Forest Archeologist that more emphasis needs to be placed on interpretive and educational programs on the value of and protection for cultural resources. All three Forests have done an excellent job on interpretation and education of prescribed fire, fire prevention, wildlife management, Leave No Trace and Tread Lightly, conservation careers, and environmental education. There have been few interpretive or educational programs on the need for sand pine clearcutting and other types of timber management practices, the scenic byway program, or wilderness values and the Forest should improve it's efforts on those subjects over the next five years.

5-Year Trends: Public involvement efforts have remained relatively stable throughout the first 5 years of plan implementation.

Forest Plan Goal:

- Contribute to the social and economic well-being of local communities by promoting sustainable use of renewable natural resources and participating in efforts to devise creative solutions for economic health.

2.13 Monitoring Question: How are we contributing to the socioeconomic well-being?

Item to Measure: Returns to counties, indirect benefits through timber, recreation, range allotments, status report on rural development programs

Results: The following tables show the gross receipts by source for the National Forests in Florida, and the payments to counties containing national forest land in FY2004.

Table 44. Gross Receipts by Source

Source	Apalachicola	Ocala	Osceola	Choctaw-hatchee	Total
Recreation User Fees	685		100		785
Timber Products Cut	16,538	72,353	449,394		538,285
Grazing Fees					0
Land Use Fees	44,853	71,939	3,717		120,509
Mineral Fees			3,854		3,854
Power	40,339	31,615	1,642		73,596
Special use Fees		151,907	31,047	6,223	189,177
Fee Demo	31,422	227,833	85,616		344,871
Total	**133,837**	**555,647**	**575,370**	**6,223**	**1,271,077**

Table 45. Secure Rural Schools and Community Self-Determination Act Receipts

Apalachicola		Ocala		Osceola		Choctawhatchee	
Franklin	$ 25,527.59	Lake	$ 269,673.55	Baker	$258,135.07	Okaloosa	$ 706.30
Leon	$120,898.70	Marion	$ 883,050.72	Columbia	$228,318.83	Walton	$ 703.60
Liberty	$307,964.94	Putnam	$ 75,765.91			Santa Rosa	$ 145.85
Wakulla	$195,132.96						
Total	**$649,524.19**		**$1,228,490.18**		**$486,453.90**		**$1,555.75**

Table 46. Payment in Lieu of Taxes

Apalachicola		Ocala		Osceola		Choctawhatchee	
Franklin	$ 20,147.00	Lake	$ 24,594.00	Baker	$ 37,726.00	Okaloosa	$5,214.00
Leon	$ 84,716.00	Marion	$ 79,821.00	Columbia	$ 35,240.00	Santa Rosa	$1,987.00
Liberty	$212,540.00	Putnam	$ 10,103.00			Walton	$ 510.00
Wakulla	$139,381.00						
Total	**$456,784.00**		**$114,518.00**		**$ 72,966.00**		**$7,711.00**

Evaluation: Federal legislation (Secure Rural Schools and Community Self-Determination Act of 2000, P.L. 106-393) changed the way Forest Service payments to states are calculated. Since 1908 under legislation commonly known as the 25 Percent Fund Act, 25% of any revenues from National Forest lands within state boundaries were returned to that state to be used for roads and schools. The state then distributed those funds to their counties with National Forest lands in their boundaries. The new legislation gives counties containing National Forest lands the option of taking the average high-three 25% payments they received between the years 1986 and 1999 in place of the 25% payment they would receive from Forest revenues from the most recent year.

5-Year Trends: Since FY2001, all counties have elected to receive the "full payment" (the law's term used to mean the "average of the high-three"). Total payments to counties increased to $3,459,966 in FY 2002, and remained at that level in 2003 and 2004. Annual total payments will remain at this level until 2006.

Forest Plan Standards and Guidelines for special forest products are found on pages 3-22 and 3-23 of the Forest Plan and include standards and guidelines **VG-33** through **VG-36.:**

2.14 Monitoring Question: How much of each "special forest product" did we give permits to be collected and in what locations?

Item to Measure: Quantity of each type, Ranger District and compartment.

Results: The actual quantity of products *collected* is unknown for 2004. The quantity for which collection permits were *issued* is shown in the following table. Permits are usually issued on a broad area basis and specific locations are generally not recorded. 619 permits were issued. 114 permits were free-use and 505 were commercial permits. Total value of products was $17,420.14.

Table 47. Special Product Summary 2004

Location	Fire-wood (CCF)	Palmetto Berries (lbs)	Palmetto Fronds (each)	Plants (lbs)	Plants (each)	Pine Boughs (each)	Pine Straw (bushels)	Christmas Trees (each)	Crooked Wood (piece)	Poles (each)	Deer-Moss (lbs)
Apalachicola	91	0	0	4	0	0	4	0	0	0	0
Osceola	2	0	0	4,000	0	0	0	0	0	0	0
Ocala	135	39,000	39,500	0	5,850	26,500	1	174	0	361	1,200
Total	**228**	**39,000**	**39,500**	**4,004**	**5,850**	**26,500**	**5**	**174**	**35,045**	**361**	**1,200**

Evaluation: In the context of acres and amounts of the above resources present on each National Forest, the quantities of these special products removed does not appear to be significant. More detailed information on specific sites should be tracked to help determine cumulative amounts in the same area.

5-year Trends: Before the Revised Forest Plan required monitoring of special forest product permits, this information was not collected and Forest managers did not have a good record of how much material was permitted annually. For most of these forest products, the amount collected each year, and the dollar value, is fairly small and does not indicate a trend of over-collecting or adverse effects on any forest resource.

Table 48. Five-year Forest Product Summary

Location	Fire-wood (CCF)	Palmetto Berries (lbs)	Palmetto Fronds (each)	Plants (lbs)	Plants (each)	Pine Boughs (each)	Pine Straw (bushels)	Christmas Trees (each)	Crooked Wood (piece)	Poles (each)	Deer-Moss (lbs)
2000	207	3.5	62,000	0	0	21,500	4	0	0	0	0
2001	200	0	63,500	4,000	0	47,500	0	122	95,683	0	800
2002	136	0	33,000	0	4,327	33,200	0	122	43,253	0	0
2003	404	2,500	45,500	1,500	600	31,500	5	59	35,045		
2004	228	39,000	39,500	4,004	5,850	26,500	5	174	35,045	361	1,200

Forest Plan Standards and Guidelines for timber production is found on page 3-21 of the Forest Plan and includes standard **VG-29.**

2.15 Monitoring Question: How much timber was offered for sale?

Item to Measure: MMCF (million cubic feet) of timber offered annually by type, product, and forest

Results: 7.026 MMCF was offered for sale in FY 2004: 4.029 MMCF on the Ocala, 1.770 MMCF on the Osceola, and 1.227 MMCF on the Apalachicola. The five-year total of timber offered for sale through FY's 2000-2004 is 26.716 MMCF, which is 26% of the maximum allowed for the first 10 year period.

Evaluation: The standard in the Forest Plan related to timber production places a limit of selling no more than 103 MMCF of timber in the ten-year planning period. The total volumes offered for sale and actually sold are within the standard. No recommendations for change are needed at this point in the planning period.

5-Year Trends: The Forest is within the sale quantities indicated in the Forest Plan.

Table 49. Five-year summary of volume offered.

Year	Volume offered (MMCF)
2000	6.14
2001	3.15
2002	5.38
2003	5.01
2004	7.05
Total	**26.7**

Forest Plan Standards and Guidelines for special uses are found on pages 3-10 through 3-12 of the Forest Plan and include standards and guidelines **LA-8** through **LA-18.**

2.16 Monitoring Question: Are special-use permits in compliance and if not, what actions are taken?

Item to Measure: Number of cases of noncompliance actions taken

Results: In FY 2004, the National Forests in Florida had more than 715 special use permits. Due to budget constraints, compliance monitoring was completed on a sample of special use permits in FY2004. Based on this information, it is estimated that generally less than 1% of permits are in noncompliance.

We find ourselves processing new applications rather than completing inspections of current uses to meet public demand. For the most part, the Forest has found it almost impossible to inform new special use applicants that we are not accepting new applications until all current uses have been inspected and brought up to standard.

Evaluation: Our biggest challenge is not having the funds to adequately manage the program. In the second half of the planning period, the Forest may want to look at a moratorium on accepting new applications in order to catch up on the backlog of permit inspections that need to be done each year.

5-Year Trends: The Forest has been experiencing a trend over the last 5 years of not completing inspections of current special use permits because of the number of new applications.

Forest Plan Standards and Guidelines for road management are found on pages 3-7 and 3-8 of the Forest Plan and include standards and guidelines **IN-1** through **IN-3.**

2.17 Monitoring Question: How many miles of roads have been converted to another use or otherwise closed?

Item to Measure: Miles of roads closed and deleted in transportation inventory system updates.

Results: 0 miles of roads were decommissioned in FY 2004.
0 miles of roads were deleted from the system.

Evaluation: Road condition surveys utilizing electronic road logs were finalized in FY2004 with 100% of all Maintenance Level 3, 4, and 5 roads being surveyed and completion of the random sample mileages of Level 1 and 2. Since these routes were being electronically measured and loaded directly into the INFRASTRUCTURE database system, mileages were revised which resulted in an increase of 15 miles of system roads. No actual construction of new roads occurred in FY2004; the increase in system roads is due simply to better tracking of data. Decommissioning of roads has not occurred due to the studies being done on the transportation system. Once these assessments are completed and a NEPA decision has been made, all forests will decommission roads that don't re-vegetate naturally as needed. In addition, temporary roads built under contract or permit are being revegetated within 10 years of contract termination except in situations where unauthorized recreation use has occurred.

5-Year Trends: With more Americans enjoying outdoor recreational opportunities, the Forest Service defined one of their Strategic Goals and Objectives for the Forest Service as: "Improve the management of off-highway use to protect natural resources, promote safety for all users, and minimize conflicts among various uses through the collaborative development and implementation of locally-based travel management plans." The demand in Florida for off-highway use has increased in the last five years and so has ATV use.

The increase in user-created routes across all forests in the State has been an issue of concern in Florida. The flat terrain makes it easy to go cross-country and once the path is made, other users follow. The Roads Analysis Process (RAP) study completed in 1998 on each forest was a first step to determine an ultimate transportation system. From this internal process and because of an increasing demand for recreational use, it became evident that the process for a final transportation system would need to involve several steps. The first step was to look at areas on the forest that are sensitive, where restrictions would be tighter due to environmental and biological concerns.

Table 50. Five year summary of miles converted

Year	Miles converted
2000	58

Year	Miles converted
2001	12
2002	0
2003	0
2004	0

Road access studies in these restricted areas have been a major focus for the past couple of years. OHV use and the public demand for this recreational opportunity has increased significantly on the Ocala and Apalachicola NFs due to the nearby urban areas. The lack of other opportunities for this use on State or private lands is evident, as the number of riders has increased each year. Some existing borrow pits have become "concentrated use" areas for ATVs, creating environmental damage as the pit boundaries are expanded from this use. Safety has become a major concern due to the number of riders and the use along power lines and classified forest roads. Therefore, the focus in the restricted areas has been to give these riders a legal place to ride, dedicate specific trails for OHV use, and prevent further erosion and environmental damage by restricting this use to designated routes only. Designation of OHV trails will hopefully stop the proliferation of user-made roads on the forests. It would also allow these pathways to grow over and soon disappear as they become re-vegetated. It is too early yet to assess the effects of designating trails and areas for OHV use, but over the next five years monitoring of the OHV trail system will permit a determination of whether OHV demand is a significant issue for the next Forest Plan revision.

Organizational Effectiveness

Forest Plan Goals:

- Ensure a philosophy of service is paramount in our relationship with the public in the management of forest resources.
- Be aggressive and innovative in providing for public participation in planning, managing, and monitoring of the national forests.
- Strengthen partnerships and actively pursue communication, cooperation, and partnerships with other national forests, other agencies, groups, local communities, organizations, and tribal governments to serve the public interest, consistent with the Forest Service Mission.
- Meet regularly and often with county commissioners, congressional staff, tribal governments, and State agency directors to ensure a high level of positive communication needed to maintain national forests for quality public uses and values.

Forest Plan Objective:

- Implement surveys for determining public satisfaction with National Forests in Florida programs.

3.1 Monitoring Question: Are people satisfied with service from the National Forests in Florida? (*This monitoring item removed by Forest Plan Amendment #2.)*

Forest Plan Objective:

- Ensure innovative and aggressive public involvement in national forest management by developing partnership documents with other national forests and public groups and with local, State, and other Federal agencies, and tribal governments.

3.2 Monitoring Questions: How much public participation do we have? Have partnerships been strengthened? (*This monitoring item removed by Forest Plan Amendment #2.)*

Item to Measure: Status Report.

Results: Although the above two monitoring items proved difficult to measure, public involvement continues to be a priority for the Forest. Numerous opportunities for public input to processes were provided throughout the year through workshops, scoping letters, public meetings, and forest website. Public input was received on several project level environmental analyses and the large public participation effort directed at forest access continued.

Indicative of the forest's commitment to public involvement is the ongoing Access Designation Process. This progressive public involvement strategy has involved thousands of forest users in determining the final access opportunities for the forests. The Access Designation Process should be finalized this year.

The forest continues to seek opportunities for accomplishing work in a collaborative way through working relationships with partners. In an informal way, we have partnered with hundreds of groups, agencies, individuals, and organizations. Almost everything we do requires some type of partnering effort.

The National Forests in Florida developed the following formal partnerships in FY 2004:

8 Challenge Cost Share
8 Participating Agreements
2 Amendments to Participating
4 Collection Agreements
5 Law Enforcement Cooperative Agreements
1 Amendment to LE
24 Interagency Agreements
3 Amendments to Interagency Agreement
5 Memoranda of Understanding

Evaluation: This item was dropped from the Forest Plan monitoring plan based on the Forest Plan Amendment #2. It is reported here since this is the 5-year Report.

Five-year trend: The number of formal partnerships and agreements has steadily increased over the last 5 years.

3.3 Monitoring Questions: Did we do what we said we would do?

Item to Measure: Decision documents and field review of implementation.

Results: Supervisor's Office staff participated in monitoring numerous planned, ongoing and completed projects on all three National Forests in Florida. In addition, Regional Office planning staff conducted a functional assistance trip to the Forests to review land management planning and NEPA programs on the forest. The team worked with ID Team members to discuss problem areas and identify opportunities to improve the planning process.

The estimated budget for implementing the Forest Plan was 19 million dollars in 1999. The budget has risen slightly to approximately 21 million dollars in 2004. While there has been a general increase in all implementation costs, there have not been any major deviations from the planned budget.

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Evaluation: No serious deviations in the implementation of planned projects has been identified. Continued review of projects needs to occur.

Five-year trend: No clear trend is evident.

III. Evaluation of Outcomes on the Land

Evaluation of Outcomes:

Overall, the conditions on the ground are within those anticipated when the Forest Plan was revised in 1999, and there have been no major changes in conditions or demands in the area.

Forest Ecosystems

As a result of increased efforts to burn during both growing season and non-growing season, under-story vegetation on many portions of the forest is improving notably. Non-native invasive species continue to be evident along roadsides and other disturbed areas. Over-story vegetation continues to be in need of thinning and restoration to native species. This is a long-term effort which will ultimately take many years to accomplish.

- More effort should be made to schedule removal of slash pine from mixed stands on the Osceola National Forest.
- Areas suitable for thinning of longleaf stands should be identified and incorporated in project planning.
- Areas suitable for uneven-aged management should be identified and incorporated in project planning.
- Opportunities to initiate irregular shelterwood harvest should be identified.
- Increase regeneration of sand pine on the Ocala NF
- Develop a Forest-wide action plan for identifying and treating non-native invasive species.

Roads and Trails

Delays in the designation of roads and trails for motorized access have resulted in continued use of the existing system. Impacts to natural resources in some key areas, particularly wetland habitats have initiated several temporary emergency closures on the forest until the access designation system is completed and appropriately signed.

Efforts to complete the access designation system should remain one of the highest priorities on the Forest.

Recreation

Recreation opportunities on the forest remain relatively unchanged since the 1999 Revised LRMP was signed. Developed recreation sites have been improved with accessibility being a key component of upgrades. Substantial progress on the Florida National Scenic Trail has been made. No change in Wilderness opportunities or demand have been identified. During FY 2006 a new Recreation Visitor Use inventory will be conducted.

Watershed Conditions

Required soil and water resource protection is being accomplished. Although nitrate levels in ground waters are rising in many areas across the state, water samples tested on the National Forests in Florida continue to be at normal historic levels. Many spring systems in Florida have recently experienced an increase in the amount of algae present in both the spring boils and spring runs. Although algae are normally found in these systems, the amount present has been increasing and is an issue of concern for many. Florida Department of Environmental Protection in cooperation with Michigan State University has begun a study of the springs in Florida. Results will be reported following publication of study results.

Demands of the Public and Emerging Issues

Chief Bosworth has identified four emerging issues representing the major threats to national forests today. These include: fire and forest health; invasive species; unmanaged recreation and fragmentation. Although the chief was commenting on threats to national forests across the country these same four threats are relevant here in Florida and often form the basis for discussions with our publics.

A Final Planning Rule has been implemented by the Agency and is in effect. The National Forests in Florida is operating under the transition period identified in this Rule. Until such time as the Forest decides to transition to the new Rule, it will continue to operate under the 1982 Planning Rule.

A Final Roadless Rule has also been implemented. The National Forests in Florida at this time has been unaffected by this Rule and will continue to manage it's inventoried roadless areas according to guidance in the Revised 1999 LRMP.

A Revised OHV Rule is nearing completion. The National Forests in Florida a moving forward with access designation based on Forest Plan direction at this time.

Research Needs

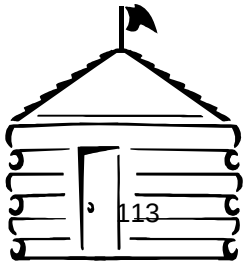
Monitoring efforts during 2004 did not disclose any immediate needs for research efforts to support the implementation and monitoring of the National Forests in Florida Forest Plan. However, additional information on several topics could help managers validate the effectiveness of management efforts and identify potential changes needed in the Forest Plan. The following does not constitute a commitment of funding for these projects.

1. Research to determine how long T&E plant species are able to persist between disturbances in sand pine scrub habitat.
2. Research to evaluate the long-term effectiveness of management techniques for site preparation in Florida scrub jay habitat. Primary techniques which should be evaluated are prescribed burning and mechanical roller chopping.
3. Research to determine habitat variables affecting movement of Florida scrub jay over time. Emphasis may be on spatial constraints as well as potential barriers to movements.

4. Research to determine optimum burning intensities, frequencies and seasons required to return longleaf/palmetto flatwoods ecosystems to conditions existing prior to fire suppression management.
5. Research to determine upland use by adult and juvenile flatwood salamanders.
6. Research to identify impacts of varying degrees and types of habitat fragmentation on flatwood salamanders.
7. Research to evaluate pond management and protection strategies to optimize habitat for flatwoods salamanders and striped newts.
8. The National Forests in Florida is developing an access management plan. Numerous wetlands have sustained damage from off-road vehicles (ORV's) and numerous user-created roads and trails exist on the forest. The forest service plans to close many miles of user-created travelways and to block access to damaged wetlands. We need information on how best to handle the restoration of these travelways and wetlands. A protocol must be developed to evaluate the rate of recovery of damaged wetlands or closed access trails/roads that have been treated with differing treatments (passive, and a variety of active management scenarios). Stratify by degree of environmental stress, community type (scrub, longleaf, and flatwoods ponds and prairies), and treatments. It should cover water chemistry, vegetation, and aquatic wildlife.
9. Research on harvest methods and other options for removal of small diameter wood for hazardous fuel reduction. Research would focus on overcoming barriers that hinder use of biomass and development of markets utilizing biomass for fuel or other purposes.
10. Research current issues related to forest management within the Wildland Urban Interface.
11. An examination of the behavior of RCWs in relation to disturbance from various forms of traffic; primarily vehicular. The concern is logging traffic passing in near proximity to active nest trees during the nesting season. We are especially concerned about birds living near level 'D' roads that have not previously been exposed to logging traffic.

On-Going Research on the forest includes:

1. Identification of visitor needs and perspectives along the Florida National Scenic Trail. This research is in the third year of a five-year study being conducted by the University of Florida.
2. The social and biological impacts of use patterns at Silver Glen springs is being conducted by Pandion consultants.



IV. M & E Action Plan

1.0 Actions Not requiring Forest Plan Amendment or Revision:

Action: Complete access designation decisions for the Ocala and Apalachicola NFs.
Responsibility: Access ID Team, Leadership Team
Status: Carried over from 2003 Monitoring Report. Osceola NF completed and now in implementation phase. Ocala NF DEIS complete and Final EIS and decision scheduled for fall 2005. The Apalachicola NF is expected to complete the process in FY2006.
Completion Date: FY 2005-2006

Action: Begin Phase 2 of the Access Designation Process in the unrestricted areas of all three forests to designate a system of OHV roads and trails.
Responsibility: Access ID Team, Leadership Team
Status: An implementation plan and timeline has been developed for Phase 2. Grants have been secured to fund a GIS-inventory of all roads and trails in the unrestricted parts of all three forests in FY2005. With a complete GIS inventory, the Access ID Team will initiate scoping to define the issues, incorporate public input, and develop alternatives for NEPA analysis.
Completion Date: Fall 2007

Action: Continue to improve progress toward the vegetative management objectives of longleaf pine restoration, pine thinning, uneven-aged harvest methods and sand pine regeneration.
Responsibility: Ecosystem Staff Officer, District Rangers, District TMAs and Silviculturists
Status: This will be accomplished through the 5-year vegetation management plan, budget requests and annual work planning.
Completion Date: Ongoing, updated annually.

Action: Develop a Forest-wide action plan for treating non-native invasive species based on Regional Guidance.
Responsibility: Ecosystem Staff Officer
Status: Initial proposal
Completion Date: Summer 2006

Action: Solicit support from the Florida congressional delegation for designation of wilderness and wild and scenic rivers recommended in the Revised Forest Plan.
Responsibility: Forest Public Affairs Officer
Status: Carried over from 2003 Monitoring Report
Completion Date: On-going

Action: Designate old growth on the Ocala and Osceola NF.
Responsibility: District Rangers and Silviculturists
Status: Begin the process in FY 2006

Completion Date: FY 2009

Action: Update the GIS database, and appropriate Forest Plan pages (including maps), to reflect Management Area changes due to newly acquired lands which were automatically allocated to the management areas they were surrounded by pursuant to 36 CFR 254.3(f). Updates will be identified in the 2005 M&E Report.
Responsibility: GIS Coordinator, Forest Planner, Lands Staff Officer
Status: On-going
Completion Date: August 2006

Action: Implement the developed strategy to increase the number of RCW groups monitored annually on the Apalachicola Ranger District from approximately 20% of the population to approximately 33% of the population. On the Wakulla Ranger District, accomplish cluster status checks at all (approximately 130) currently active clusters. Accomplish group composition determinations at 50% of the Wakulla clusters annually.
Responsibility: Apalachicola National Forest Biologist, RCW Biologist, USFWS RCW technician.
Status: Tentative strategy developed in cooperation with regional USFWS RCW biologist. Second year of implementation in progress.
Completion Date: Ongoing

Action: Obtain data needed for amending the Forest Plan to incorporate lands acquired within the Designated Pinhook Purchase Unit.
Responsibility: Forest Lands Staff Officer
Status: Current management of the area is primarily custodial due to the conditions created by the Impassible fire. At this time, the Forest plans to wait until the Forest Plan is revised due to the size of area involved, and higher management priorities of other resources in other parts of the forest. In the interim period, data will be gathered and entered into the Forest GIS system for future analysis.
Completion Date: Spring 2008

2.0 Actions Requiring Amendment or Revision of the Forest Plan:

Action: Amend the Forest Plan to update RCW direction to follow standards described in the 2003 Red-cockaded Woodpecker Recover Plan.
Responsibility: Forest Planner, Forest Biologist
Status: Environmental Assessment published.
Completion Date: October 2005

Action: Amend the Forest Plan to remove Forest-wide standard VG-24, the sand pine standard for maintaining 5% suitable in age class 55-80 years of age.
Responsibility: Forest Planner, Forest Silviculturist
Status: Scoping completed. Environmental Assessment being prepared.
Completion Date: Fall 2005

Action: Prepare a Forest Plan amendment to change the Management Indicator Species and Monitoring Strategy for MIS and PETS.
Responsibility: Ecosystems Staff Officer, Forest Biologists and Botanist, and Forest Planner
Status: Carried over from 2003 Monitoring Report. Preliminary revised list identified. Recommended to complete this amendment under the 1982 Planning Rule, and then re-evaluate after the Forest completes transition to the 2005 Planning Rule.
Completion Date: Summer 2006

Action: Amend the Forest Plan to allocate recently acquired lands for the Florida National Scenic Trail to an appropriate Management Area.
Responsibility: Forest Planner, Recreation Planner, Recreation Staff Officer
Status: Proposal being prepared
Completion Date: Spring 2006

Appendix A

Interdisciplinary Team Members

Monitoring data were collected by all staff groups in the Forest Supervisor's Office and from the Ranger Districts. The Interdisciplinary Team that assembled the monitoring data, evaluated the results, and recommended changes included:

Name	Discipline
David Harris	Forest Planner
Haven Cook	Recreation Planner
Guy Anglin	Botanist
Will Ebaugh	Hydrologist
Skip Griep	Wildlife Biologist
Bruce Harvey	Fire Staff Officer
Kyle Jones	Lands Program Manager
Rhonda Kimbrough	Forest Archeologist
Kathy O'Bryan	Civil Engineer
Richard Shelfer	Silviculturist
Terry Tenold	Landscape Architech
Cindy Huber	Air Quality Specialist
Greg Lussier	Interpretive Specialist
Denise Rains	Public Affairs Officer
Kent Wimmer	FNST Coordinator
Bobby Grinstead	Fisheries Biologist